FIRE NEEDS COMMITTEE REPORT

Part I. INTRODUCTION

A. FORMATION AND CHARGE OF COMMITTEE

The Amherst Fire Needs Committee was appointed by the Board of Selectmen in December 1981. Chosen to serve were three members representing the three educational institutions (Amherst College, Hampshire College and the University of Massachusetts), one member from the Emergency Medical Service Committee and five citizens of the Town. Also Fire Chief Gerald Sandford along with his Deputy, Casmir Ziomek, were present at most meetings.

The Selectmen, in their charge to the Committee noted that the Fire Department had experienced increasing demands for their services over the past decade as a result of the growth in residential and commercial communities, institutions of higher education and additional requests for assistance from neighboring communities. Further, they noted that the last evaluation of the Town's fire protection needs was done in 1966. At that time the Fire Protection Needs Committee recommended increased personnel and equipment as well as the construction of a new facility. They also recommended that fire services be reviewed and restructured as conditions within the Town changed. Recognizing that conditions had changed, the Selectmen established this new committee to evaluate the fire protection and emergency medical service needs of the Town of Amherst for the next ten year period. The Committee's specific charges were:

"1. To determine the fire protection and emergency medical (ambulance) short term (next five years) and long term (next 10 years) needs of Amherst;

2. To make recommendations for a program to meet the needs;

3. To make recommendations for financing the program."

The Committee Report was to include recommendations on 1) Department services, 2) Department organization, 3) Manpower needs, 4) Equipment, 5) Communications, 6)

Fire stations. While conducting this review, the Committee was charged "to meet with all classifications and ranks of Fire personnel."

B. BACKGROUND OF COMMITTEE'S EFFORTS TO ACCOMPLISH CHARGE

In its early meetings committee members were faced with the complex task of where to start in acquiring the information needed to accomplish this very comprehensive charge. For committee members, all of whom were laymen with little or no knowledge of firefighting equipment or procedures. The 1966 Fire Protection Needs Committee had been aided enormously in their work by a comprehensive survey by the New England Insurance Rating Association conducted in October 1964 which resulted in a report with recommendations in May 1965. The New England Insurance Rating Association is an organization whose function was to survey communities and rate their fire protection capability. The 1966 Fire Protection Needs Committee took the recommendations made by that Association and reacted to them. The current Fire and Ambulance Needs Committee in their first meetings considered the possibility of having a similar survey done by the Insurance Services Office (previously the NEIRA) to use as the basis for its own investigation and report. Unfortunately it was discovered that the Insurance Services Office, no longer conducts as comprehensive a survey as that done in 1965. Their investigations and reports are now confined to "insurance" concerns only and are not likely to be the kind of document that could serve as a framework for this Committee's study.

During the period from December 1981 to May 1982, the Committee: read and reviewed the statistics and analyses of the 1965 Report of the New England Rating Association, the 1966 Report of the Fire Protection Needs Committee, reviewed the subsequent actions taken by Town Meeting as a result of that report, collected statistical data from Town Reports on fire and ambulance resources and services from 1960 - 1983 and analyzed the data for the period 1976 - 1983; investigated recent budgetary appropriations and expenditures from the Town Manager's Budget

and Finance Committee Reports; reviewed Town Meeting actions on fire and ambulance services in recent years; read the Selectmen's policy statement regarding fire and ambulance service in the Board of Selectmen's Handbook, heard from former Town Manager Hayward, on changes that took place in the department during the late 1960's and early 1970's; collected statistics on fire responses and ambulance responses in recent years, collected information on the costs of ambulance services and the collection of fees for such services; met with Robert Chisholm, Chief Dispatcher and Fire Lt. Lalonde on the operation and experience over the years with ambulance service; learned about the concerns of the EMS committee regarding ambulance service from committee member Dr. Tony Melchionda; elicited information and the views of Chief Sanford and Deputy Chief Ziomek on personnel, equipment and details regarding the operation of the Fire Department in meeting the various demands placed on it. In addition, the Town Planner updated statistical information contained in the 1966 Fire Protection Needs Report regarding population growth, the growth of residential, commercial and industrial development in town and the distribution of that growth.

Although the committee was accumulating statistical and anecdotal information, some general framework was needed to evaluate the information already collected and help identify other information the committee should acquire to accomplish all the specifics of its charge.

In its May 6, 1982 meeting the Committee decided that it could not meet the complete charge given it by the Selectmen because of the overly ambitious nature of the charge and the time commitment required to accomplish it, coupled with the lack of expertise and "scarcity" of free time of committee members. It was decided, however, to develop a framework for organizing and evaluating the information collected and then report to the Selectmen on those specific areas where there was consensus.

C. CONCEPTUAL FRAMEWORK AND DATA (INFORMATION) REQUIRED TO MEET CHARGES

The conceptual framework which the committee developed revolved around three major questions:

1. WHAT level of service should the Town provide (fire protection and ambulance service) and for WHOM?

2. HOW might any agreed upon level of service be met?

3. HOW shall the costs of any level of service be distributed among the various constituent beneficiaries of service (residential, commercial, educational institutions, and neighboring towns)?

1. WHAT LEVEL OF FIRE PROTECTION AND EMS SERVICES SHOULD AMHERST BE PROVIDING AND FOR WHOM?

To come to terms with this question required a knowledge and understanding of the different constituencies served (residential/commercial, educational institutions, and neighboring towns) and the different kinds of demand for fire and EM services originating from these constituencies; the relative growth in these demands by constituency and the different impacts on manpower and equipment needs because of locational problems and differences in response times.

2. HOW COULD ANY AGREED UPON LEVEL OF SERVICES (FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES) BE MET?

In order to determine the supply of men and equipment, and even the number of fire stations necessary to meet any level of service, it was necessary to understand all the technicalities relating to how the fire department operates. This included knowing the different components of manpower available (permanent firefighters, call force, student force) and how each is used; how a "fire company" is organized, the number of companies, response times, time lag of the different component forces, efficiencies of various manpower practices, types of fire alarms and the manpower and equipment required to meet them (see Appendix II). Because the fire department also provides emergency medical services it was

necessary to learn the different kinds of demands for medical services that the department responds to and how it does it. Since manpower needs required to meet any level of demand for fire and/or medical services are not only a matter of the actual numbers of human and equipment resources available but are determined by policies concerning how those human and equipment resources are used, it was necessary to gain an understanding of what the Fire Chief's policy was regarding the use of the manpower and equipment and any constraints placed on that policy resulting from union contracts.

3. HOW SHALL THE COSTS OF ANY LEVEL OF SERVICE BE DISTRIBUTED AMONG THE VARIOUS CONSTITUENT BENEFICIARIES OF SERVICE?

The last and most troubling question relates to the financing of the costs of any level of fire and emergency medical service. This is the question of how to equitably distribute the cost among the various constituent beneficiaries of service (residential/commercial, educational institutions and neighboring towns). Achieving any kinds of "equitable" sharing of costs, however, may pose serious legal and political difficulties. The failure to find a solution to the question of equitable distribution of costs may lead to serious questions about the willingness and ability of Amherst taxpayers to fund any increased level of fire or medical service to educational institutions and surrounding towns.

Part II. REPORT AND RECOMMENDATIONS

A. INTRODUCTION

The results of the committee's investigations will be presented in this section along with the committee's recommendations in the four areas of concern where there was committee consensus.

A number of important Appendices are included as part of the Committee's report. They are provided as support for some of the committee's recommendations, including those relating to the issue of manpower needs. Appendix I is a letter

from the Assistant Chief of the Downers Grove, Illinois Fire Department detailing its system of using volunteer firemen along with full-time professionals. The Downers Grove Fire Department was recognized for its achievements by Chief Sanford. Appendix II consists of a series of diagrams and charts along with narrative, designed to illuminate the operation of the Amherst Fire Department. Appendix III is a (contains) letter from former Town Planner. Appendix IV consists of a number of tables and graphs analyzing the growth of fire and EMS responses over the period FY 76 - 83 and a summary of the analysis including some observations about how future growth in demands might be affected by departmental policy.

B. RECOMMENDATIONS

The committee identified four major areas of concern which we felt demanded attention. These areas are:

1. The provision of Emergency Medical Service as a "public" service and the sharing of cost of service among other towns served by Amherst.
2. The adequacy of our present two fire stations for covering the growing east and southeast sections of Town.
3. The adequacy of present fire prevention regulations and prevention activities by the Amherst Fire Department.
4. The adequacy of current fire department personnel for meeting current and anticipated growth in fire and ambulance demands.

The remainder of this report outlines these concerns and notes our recommendations.

1, EMERGENCY MEDICAL SERVICE

The history of an ambulance service in Amherst dates back to 1947. In that year at the annual Town Meeting, the Town accepted a gift from the "service clubs of Amherst;" a 1947 Pontiac Ambulance. Together with additional donations for ambulance maintenance and operation, the ambulance was made available "free of

charge" to the Town's residents. Furthermore, the Town Moderator was empowered to appoint a committee of three to be the Amherst Ambulance Committee which was charged with the responsibility of establishing rules and regulations relative to the use and maintenance of the ambulance and overseeing the newly created ambulance fund. Eight years later, in 1955, at the recommendation of the Ambulance Committee and the Fire Chief, Town Meeting appropriated funds for the purchase of a replacement ambulance and authorized the Ambulance Committee, for the first time, to charge a fee for the use of the ambulance. It is from these beginnings that the Emergency Medical Service (EMS) of today has evolved. The function of today's Ambulance Committee is to assist in preparing an annual EMS budget, approve expenditures for ambulance maintenance, and consider vehicle replacement.

The current EMS budget (FY 85) of approximately $210,000 incorporates salaries for eight personnel (a Fire Captain and seven firefighters) and the operation of two ambulances. These ambulances service not only the citizens of the Town of Amherst, but the citizens of the Towns of Belchertown, Hadley, Leverett, Pelham, Shutesbury and Sunderland. Fire personnel serve a dual function both as firefighters and as EMS technicians. This committee has interviewed all ranks of fire/ambulance personnel as well as the prior Town Manager, Louis Hayward, interim Town Manager, Stanley Ziomek, Dr. Tony Melchionda (now deceased) of the Ambulance Committee and EMS technicians.

RECOMMENDATION REGARDING CONTINUATION OF EMS AS A "PUBLIC SERVICE"

It is the opinion of this committee that the Town of Amherst should continue to provide an ambulance service to its citizens as opposed to contracting for private service as serveral neighboring towns have done. The primary reasons for this decision are as follows:

1. EMS service has become the primary service of the Fire Department.
2. The current EMS force is an effective, well-trained unit.

3. EMS activities provide daily activity to the firefighting force which might otherwise become bored due to the lack of fire related activity.

4. Citizens prefer local service by their neighbors.

Amherst provides EMS services to surrounding communities at no cost to those surrounding communities - at the additional expense of the Amherst taxpayer.

Example:	FY 84 EMS budget	$222,000
	Collections for same period	50,000
	NET Operating Loss	$172,000

As this statistical analysis shows (see Exhibit #1) of the 1313 responses recorded, 211 were provided to other communities. During this period a fee of $65.00 per run was charged. Overall almost 78% of the fees were uncollected. Therefore, not only does the Town of Amherst budget for all the fixed costs of the EMS service, it also bears the cost of all the uncollectibles regardless of which community generated the fee.

RECOMMENDATIONS ON SHARING OF COST OF SERVICE BY OTHER TOWNS.

This committee strongly recommends that other communities serviced by the Town of Amherst EMS pay their fair share of the fixed costs associated with providing this service on the same percentage basis as service is rendered to that community. Example: In FY 82, the Town of Hadley used the ambulance service 12.58%. Therefore 12.58% of the FY 83 budget should be billed to the Town of Hadley (12.58% of $212,783 = $26,768). This could be done on a three-year rolling average. Further, billings for runs to Hadley would be identified by the EMS service. However payment should be guaranteed by the Town of Hadley with ultimate responsibility for collection, theirs. This would be the same for all neighboring communities serviced by the Town of Amherst.

Secondly, first response to the scene of a possible EMS request should be made by authorities of that municipality, thereby eliminating needless runs which deplete

Exhibit #1

AMHERST AMBULANCE
RESPONSE LOCATIONS
1313 runs

STATISTICAL DEMANDS
FY 1983

LOCATION	RESPONSES	PERCENRAGE USE
Amherst	1102	84.15
Hadley	136	10.22
Pelham	35	2.63
Leverett	21	1.58
Shutesbury	18	1.35
Sunderland	1	.08
Total	1313	

Campuses (included in Amherst above)		
University of Massachusetts	264	19.83
Amherst College	19	1.43
Hampshire College	19	1.43

Emergency Responses	1142	85.8
Transfers	189	14.2

the Amherst Fire Department of personnel who may be needed for a fire emergency. Also, this provides that a local authority is "in charge" of the scene within that community thereby reducing any liability to the Town of Amherst.

Thirdly, ambulance transfers should be eliminated so that only emergency runs are contemplated. Transfers should be done by private service or the purchase of a third ambulance should be investigated for transfers only, operated by "off duty" personnel.

Fourth, the fee structure should be revised to reflect the true cost of the service or the Town should decide to what extent the service should be subsidized by the Amherst taxpayer.

Example:	FY 82 EMS budget	$178,807
	Collections ($45 per run)	34,485
	Net Cost	$144,322
	Number of runs 1280	
	Actual cost per run	$113.00

Fifth, collections should be centralized with responsibility clearly delegated to either the Fire Department or the Town Collector, so that billing and follow-up is done effectively. We feel that collection percentages in the area of 90% or better are obtainable with an effective collection system.

Lastly, we feel that a written agreement with other municipalities using the EMS service be secured. This agreement should lay down not only the aforementioned formula for payment of fixed costs, collections and first reponse, but should include "hold harmless" language maintaining that the requesting community hold the EMS service harmless from suit claiming negligence.

2. FIRE STATIONS

Currently, the Town of Amherst fire and EMT services operate from two locations, a central station located in the commercial center as well as a station located about one mile North of the center on East Pleasant Street. In the 1965 report of the New

England Insurance Rating Association a recommendation for a three station system was advanced. This proposal called for the addition of a second station in North Amherst and a third station to be located in the "Southern area of Amherst," as additional housing development takes place. However, contrary to this recommendation, the 1966 report of the Fire Protection Needs Committee, adopted a two station concept when it reported, "The Committee feels a two station concept is preferable and more practical if both stations are strategically located. With either a two or three station concept, it would be necessary to staff all stations to receive full fire rating value from them. It is for this reason that the number of fire stations in many large cities is being reduced. Equipment housed in small neighborhood stations with inadequate manpower is an outmoded and insufficient fire-fighting concept"* - In addition the overall growth in the Town's population from 1966 until today coupled with tremendous building growth in So. Amherst and East Amherst - since that date (see attached sheet for stats from Town Planner) leads this Committee to concur with the previous recommendations of the 1966 Fire Needs Committee. Also, we feel that increased traffic and related congestion in the Town's central business district as well as the general increase in the number of EMT related responses outside that area requires a station located closer to southerly areas to help reduce response time.

RECOMMENDATIONS

This Committee recommends that this issue be referred to the Facilities Planning Committee. Further, this study committee should investigate the possibility of combining the use of the building with that of the police department thereby making the building more functional and efficient. Space savings from combining these two departments may be realized for such things as communications systems of these two departments and other areas of duplication.

*The North Station location was conceived with the understanding that it would be located on the planned Northeast By-pass which subsequently was not built.

3. FIRE PREVENTION REGULATIONS AND PREVENTION ACTIVITIES.

In 1965, the New England Insurance Rating Association recommended:

> "A Fire Prevention Bureau should be established within the Fire Department under the direct supervision of the Chief. The Chief should appoint a capable and qualified man to the bureau who would establish a system of inspections and rigidly enforce applicable fire prevention laws and ordinances.
>
> A suitable code of regulations governing the manufacture, sale storage, transportation and use of hazardous materials and processes should be adopted. The Chief of the Fire Department should be responsible for its enforcement and the keeping of records. Members of the recommended fire prevention bureau should make regular and systematic inspections of all buildings and premises, except those exempt by law, filing complete records of each inspection. It is recommended that the Fire Prevention Code, 1965 edition, promulgated by the American Insurance Association (formerly the National Board of Fire Underwriters) be used as a guide in framing local regulations."

The following year, the Amherst Fire Protection Needs Committee, in its final report dated December, 1966, stated:

> "THE COMMITTEE ENDORSES THE RECOMMENDATIONS OF THE N.E.I.R.A. THAT A FIRE PREVENTION BUREAU OF SOME TYPE BE ESTABLISHED WITHIN THE FIRE DEPARTMENT. IT RECOMMENDS THAT ONE STAFF POSITION BE ASSIGNED THE RESPONSIBILITY OF HEADING THIS FUNCTION ON A FULL-TIME BASIS. Proper records should be maintained and enforcement of fire laws and ordinances should be the responsibility of the fire prevention officer under supervision of the Chief. THE COMMITTEE RECOMMENDS THE ADOPTION OF A FIRE PREVENTION CODE."

A "Code" was not formally adopted, but for some time the position of Deputy Chief for Fire Prevention was in existence in the Amherst Fire Department. The incumbent, Mr. Homer Cowles, did make periodic inspections of facilities of the educational and other properties in the Town in order to identify fire safety hazards existing because of improper housekeeping, lifestyle, or other practices. Following Mr. Cowles' retirement, Deputy Chief, Casmir Ziomek was designated as Fire Prevention Officer.

Currently the Town provides, through its Inspection Services Department, enforcement of the 1975 Massachusetts State Building Code. This Code concerns itself with matters pertaining to the construction of a building, its alteration, repair or extension. A Fire Prevention Code on the other hand, would prescribe "minimum requirements and controls to safeguard life, property or public welfare

from the hazards of fire and explosion arising from the storage, handling or use of substances, materials or devices and from conditions hazardous to life, property or public welfare in the use or occupancy of buildings, structures, sheds, tents, lots, or premises.[1] It seems to this committee that safety in the construction of a building is only one half of the safety formula. Requiring the safe storage and use of hazardous materials and safe conditions by the occupant/owner of that building is the other half.

RECOMMENDATION

This committee concurs with the recommendation of the 1966 report of the Amherst Fire Protection Needs Committee that a Fire Prevention Code be adopted. We recommend that the Building Officials and Code Administrators (BOCA) Basic Fire Prevention Code be adopted by the Town of Amherst as an enforceable fire safety regulation. Further, we recommend that the authority to apply and enforce that Code be vested in the Fire Department of the Town of Amherst. This may require additional staffing for enforcement.

4. ADEQUACY OF CURRENT FIRE DEPARTMENT PERSONNEL

There is no simple formula for determining a specific number of firefighters to give adequate protection to a town made up of 27 square miles with a population (including college and university students) of approximately 50,000 people. The Town of Amherst has long supported the concept of a fire department consisting of a full-time permanent force, reinforced by part-time trained residents and student firefighters. This policy is enumerated in the Board of Selectmen's Policy Handbook dated January 1, 1982 which states:

> "The Board recognizes the uniqueness of the fire protection problem in Amherst caused by the unusual mix of single family residences, multi-family residences, dormitories and institutional buildings as well as the responsibilities of providing life safety to a large population.

[1] Art. F-100.2 BOCA Basic Fire Prevention Code/1981

> In order to respond to this need the Board supports the concept of a small highly trained organization of professional firefighters reinforced by a part-time trained resident and student auxiliary force equipped with modern apparatus, safety equipment and communication equipment."

Current policy provides for stations to be staffed by 5-6 "on duty" personnel 24 hours per day, 7 days per week. By following this policy an unacceptable level of response is encountered when two simultaneous calls either fire, ambulance or a combination thereof, arises. This leaves the department without the ability to adequately provide further service to the community. Such incidences of simultaneous calls do occur. Prior Chiefs considered this to be a significant problem for them and the Town and as a result, called for the addition of up to eight permanent personnel. This committee agrees that leaving the stations unmanned during simultaneous calls presents an unacceptable level of risk to the community. However, we also recognize that no town can afford to provide adequate "permanent" staffing for coping with any major catastrophes that might occur. Such catastrophies would require the support of "back up" volunteers. Protection for major catastrophies requires the maintenance of strong call and auxilliary forces. The real question facing this committee is how the Town can provide an increase in "on duty" personnel which would assure a reasonable level of fire protection and Emergency Medical Service, and a strong "back up" force that could be called upon in the event of major catastrophies in a cost-effective manner consistent with the financial resources of the Town.

The Appendix II charts show the current staffing schedule depicting the authorized as well as the actual strength of the department. Also included to help understand how the department responds to emergencies is an Organization Diagram, a listing of the various "Class of Alarms" and "Alarm Response" diagram for fire and ambulance responses.

In meetings in 1982 with Fire Chief Sanford, committee members were told that the current permanent force provides for three men "on duty" per shift at the

central fire station and two to three men on duty per shift at the North Fire Station. The problem as presented to the Committee is that firefighters also perform ambulance service duties. If no ambulance is out we have two two-man fire companies for any initial fire response. If one ambulance is out, which involves two firefighters out, and there is an alarm (a still alarm) then the remaining two (or three) permanent firefighters must respond and the Town is, therefore, unable to respond to either another ambulance call or fire call. If two ambulances are out the Town is effectively left without fire protection. It was noted that in FY 81 there were 150 times when both ambulances were out.

In considering possible solutions to this problem in his August 5, 1981 memo to the Selectmen, the Chief suggested as the most logical solution "to add two permanent men per shift. This would allow us seven men per shift. It would allow us to always man an ambulance when we are in a fire alarm situation. Even when we were in a two ambulance out situation we would have a firefighting force on duty."

Some committee members seemed to believe that hiring four additional firefighters along with strengthening of the call and student force might be a more "politically feasible" solution. However adding four more permanent men would in itself add 0.8 men on duty per shift (given the assumption that it takes five men to get one man "on shift."). While that would raise permanent men on shift to six per shift and ameliorate the problem it would not solve the problem outlined by the Chief. Anything short of adding 9-10 permanent men would leave us with almost the same situation as at present and would still require the back-up support of the call and or student forces or the use of "overtime" hiring. In the case of a box alarm, of course, all forces would have to be used, even if any new firefighters were to be hired. The cost of hiring four additional permanent firefighters amounts to an increase in annual operating costs of about $100,000 ($25,000 per firefighter). (Cost in 1977 estimated at about $21,000, including fringes, etc.). Hiring eight additional firefighters would come at an annual cost of twice that amount.

Staffing is not a simple function of the number of permanent men, but also depends on the department's policy with respect to the use of the total stock of manpower available. This is especially true for a fire department, like ours, whose available manpower resides in three different forces. How the fire department uses its different forces, that is, its "manpower-management policy" is an important factor in determining and evaluating any request for additions to the permanent force. Supporting any recommendation by the Chief for additional permanent men requires that the manpower policy be made explicit and that the committee understand the reasons for that particular policy.

Chief Sanford and Deputy Chief Ziomek did explain the current policy and some of the reasons for it, including how some of the provisions of the current union contract affect department policy.

Although some committee members felt that evaluating the Chief's policy was not an appropriate task for the committee, others felt that their support of the Chief's request for hiring 8-10 additional firefighters, or adjusting that downwards by any number, carried with it the implicit acceptance of the current manpower policy. They believed that considering the cost imposed on the town by such a recommendation, they should consider the advantages and disadvantages of alternative manpower policies before supporting any request for additional men (see Narrative, Appendix IV).

There is evidence, both from past history in Amherst and from other towns, that alternatives to hiring more permanent men do exist and can work.

A review of past experience in Amherst leads to the conclusion that the student force is currently underutilized and could be more effectively utilized.

When the Town and the University addressed the need for more manpower and funding support to increase the level of fire protection at the University it was agreed that, in addition to donating the land adjacent to the campus for a new station, the University would cooperate in arranging student manpower and providing

security personnel to serve as "call" firemen, and would annually fund the equipment required by them. Although various parts of that agreement failed to materialize, the North Fire Station was designed and built on the assumption of a greater utilization of the student force, and included space and facilities for student occupancy. There are eight members of the student force who currently reside in the North Fire Station. That force represents a significant potential manpower resource. They participate in an ongoing and extensive training program. Three members of the force are currently certified as pump operator/drivers. Six of the eight students residing at the station are qualified as E.M.T.'s and have been used in providing ambulance service. The record for FY 83 shows that the student force responded to 41 box alarms, 15 still alarms, 6 ambulance calls and 2 rescues using the "Jaws of Life" tool. They also responded to provide mutual aid to other towns. They routinely staff their engine company from midnight to 7 a.m. daily.

Although past annual Town Reports show a history of varying degrees of utilization of this force there appears to be no variation in the degree of satisfaction with their record of performance. That they have been well-trained, well-motivated and successful in their performance is not only a matter of record in reports of the department in the Annual Town Reports, but was attested to by both Chief Sanford and Deputy Chief Ziomek in their meetings with the Committee. Both Chiefs applauded the students enthusiasm, motivation, training and abilities. In recent years there has been even more attention given to the on-going training program for this force, along with the training for the permanent and call forces. Efforts devoted to increased training which increases the capabilities of this force given the current utilization does not seem to make sense. It is also interesting to note that four members of the current permanent force have been drawn from the ranks of the student force.

Although the committee has done little in examining the qualifications or past use of the call force, alternative policies for using this source of potential manpower should be explored.

Evidence from outside Amherst also indicates that more effective use can be made of our three forces. A good exmaple of successful experience in using volunteer firemen along with full-time personnel in achieving maximum fire protection while minimizing costs is that of Downers Grove, Illinois, a community of about 50,000 people.

The committee requested and received a letter from Mr. James Mrkvicha, Assistant Chief of the Downer's Grove Fire Department detailing their fire system (see Appendix I).

Committee members recognize the fine job done by the Fire Department over the years and wish to commend the Department for that. Perhaps the best indicator of success is the fact that no loss of life as a result of fire related episodes has occurred in over twenty years. In addition the annual fire losses in Amherst are below what national norms are for towns of similar population size (see Exhibit 2).

Appendix IV provides some statistical analyses of the growth of fire and EMS responses from the first full year of operation of the North Fire Station (FY 76) through FY 83. In addition a review of the yearly reports of the fire department in the Annual Town Reports was made to help reveal the sources of the measured growth in responses in an attempt to discover whether it was possible to "control" through town and departmental policies the various sources of growth in demands which might alleviate some of the need for "additional" personnel. The results of that review are included in the narrative portion of Appendix IV.

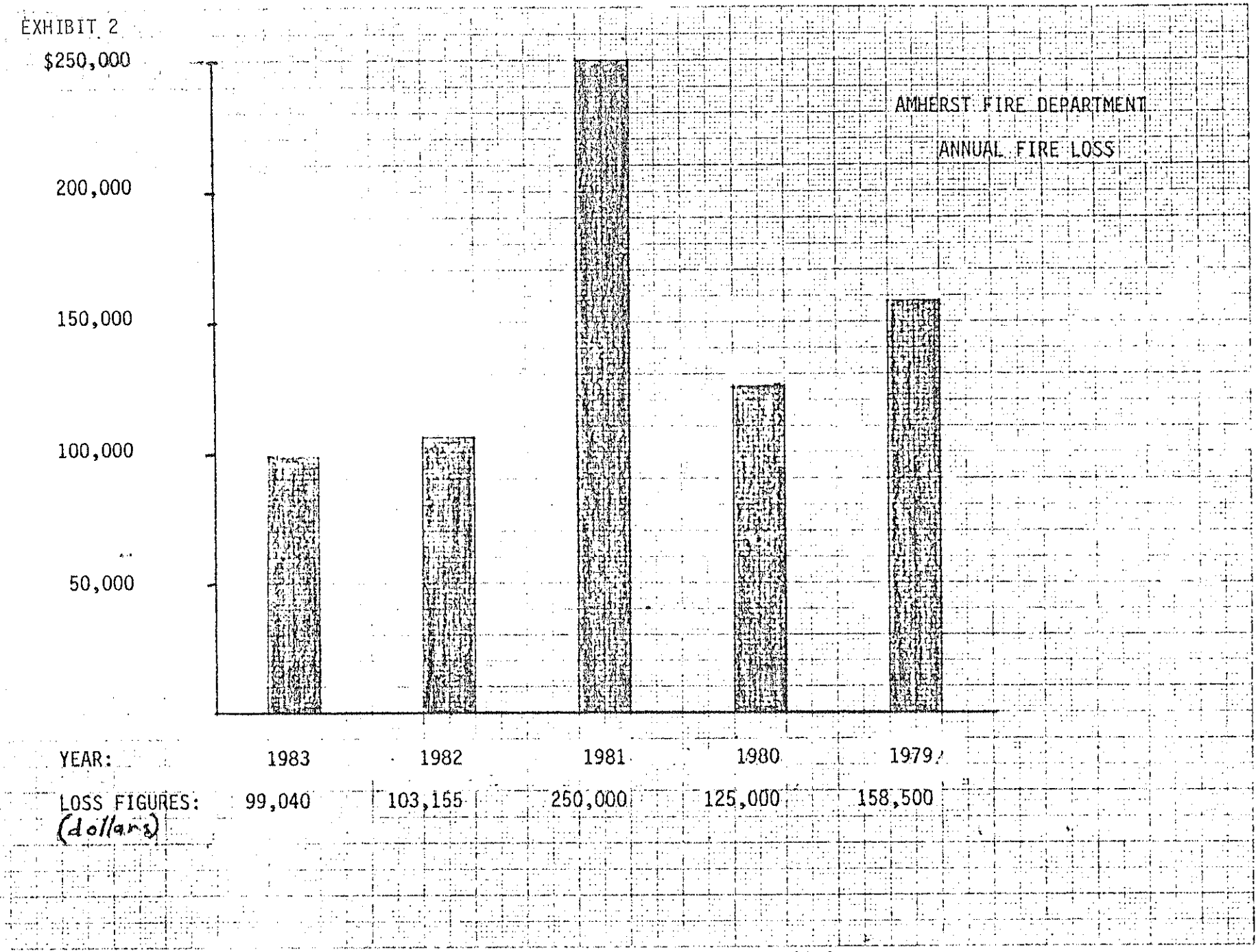
RECOMMENDATION ON MANPOWER

If the Committee's recommendations for the adoption and enforcement of a Fire Prevention Code, and for stabilizing and/or reducing fire and ambulance demands in the near future prove acceptable and are successful, the 2.9% annualized trend in

total demands could be reduced. This would have an important impact on the manpower requirements of the department.

In addition it appears possible that other management policies could be tried which would increase the manpower available to the department from its student force and call force and enable the current permanent force to remain the same, while permitting the department to adequately meet expected near-term demands. The majority of the committee believes we should try this approach before recommending any increase in permanent personnel. This does not mean that there should be no additions to the permanent force in the future, but rather that until alternative possibilities are fully explored and experience proves them to be undesirable or unsuccessful, the committee cannot, in good conscience, support any request for additional permanent personnel.

EXHIBIT 2



Source: Material presented by Fire Department for Annual Town Report 1983

APPENDIX I

FIRE DEPARTMENT • 3900 HIGHLAND AVENUE • DOWNERS GROVE, IL. 60515 • 312-971-3790

The "Downers Grove System" is unique in using volunteer firemen along with full time personnel to achieve the maximum fire protection for minimum cost. In order to utilize this concept the volunteer department must be a strong organization and of adequate numbers to support the plan.

We presently run three fire stations in our town of just under 50,000 population using this plan. We have 20 full time firemen, 3 Fire Prevention Bureau inspectors and a full time Chief. Our volunteers number 35 men with all ranks represented in the volunteers.

We operate the day time shift with full time personnel on three shifts which each work four days per week. The hours worked by full time personnel are from 7 am till 6 pm Monday thru Saturday. Each night from 6 pm till the next morning at 7 am is manned by volunteer personnel. All day Sunday from 8 am till the following Monday morning at 7 am is manned by volunteers. The Saturday night shift is extended by 1 hour on Sunday morning to allow a man on duty Sunday to attend early church services.

Full time personnel operate on a rotating three week shift which gives each man 3 days off per week and a three day weekend every third week. The system must have three shifts which can have any number of men per shift to suit your needs. We designate the shifts as A, B & C shifts. The following calendar represents the three week rotating shift system we utilize.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
V	A&B	A&C	B&C	A&B	A&C	B&C
V	B&C	A&B	A&C	B&C	A&B	A&C
V	A&C	B&C	A&B	A&C	B&C	A&B
V	A&B	A&C	B&C	A&B	A&C	B&C

As you can see the above four week section shows how each shift gets a three day weekend every third week and how the days off alternate.

We presently pay our volunteers from $2.00 to $4.70 per hour for duty time. Each man signs up for his nights on a senority system. We break down the sign up periods into 4 week periods of 28 days. Each volunteer may sign up for 7 nights in the 28 day period.

Our full time men also are volunteers on their off duty time and as such also stay nights. They are allowed to stay 6 nights in the 28 day period. They cannot take more than 2 nights per week, which works out to two weeks of only 1 night per week and two weeks of 2 nights per week. Our Village has a policy of paying overtime to firemen after 58 hours per week. We pay our full time men as volunteers for their night duty except that any overtime is based on their full time salary. That is the extra 1/2 time earned as overtime is based on their full time salary. Our full time men earn from $6.50 to $10.00 per hour on their full time salary.

Each man that stays at night is also obligated to fill a Sunday daytime position. This works out to once every 8 weeks at Station #3, once every 6 weeks at Station #2 and on a voluntary basis at Station #1. The men assigned to a station stay their Sundays at that station except that the men at Station #1 are assigned to Station #3 for Sunday time and anybody can fill in at Station #1 on any Sunday but their assigned Sunday.

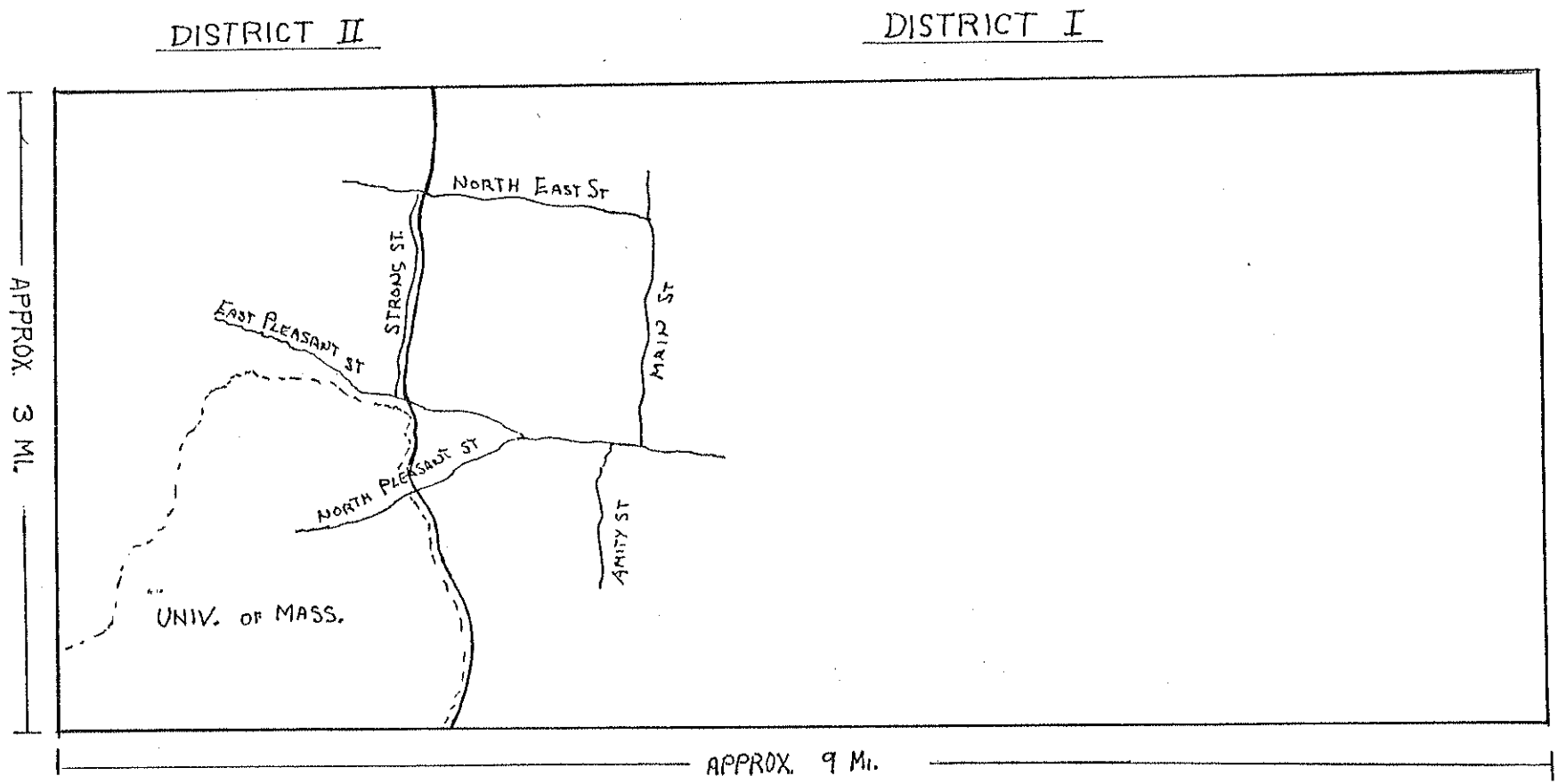
We also have many rules which have helped us run more smoothly in our particular situation. These would not apply in all or even most situations so we will not bring them up except to say that you must be flexible and the stayers rules must be constantly updated and changed to keep current with the state of your department manpower, vacation schedules, etc..

If you have any questions after reading the above information please feel free to write ar call asking specific questions which may help you to implement tnis type of system in your city.

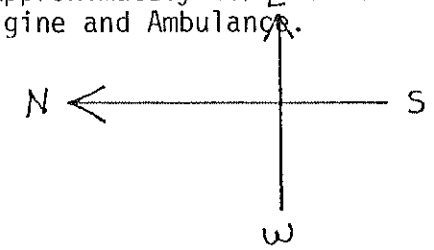
Sincerely,

James W. Mrkvicka
Assistant Chief

AMHERST FIRE DISTRICTS

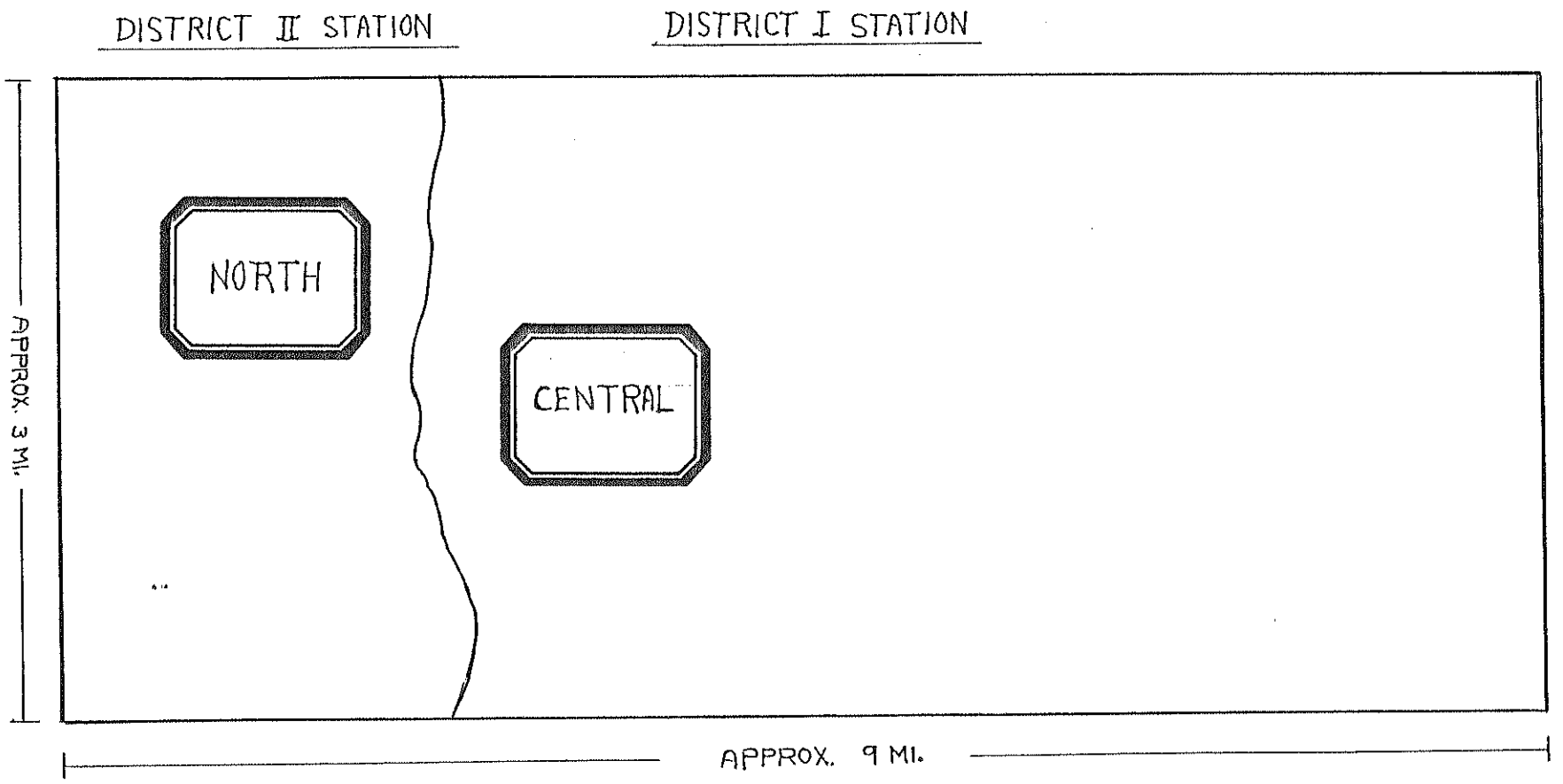


These maps (this and the next page) divide the Town into two response districts. Central Fire Station is in District I which covers the Town South of the University of Massachusetts. Approximately 60% of the total responses occur in this District. North Fire Station is in District II and covers the University and North. Approximately 40% of the responses. Both Stations are manned with on duty permanent personnel with an assigned Engine and Ambulance.



NOT TO SCALE

FIRE STATIONS



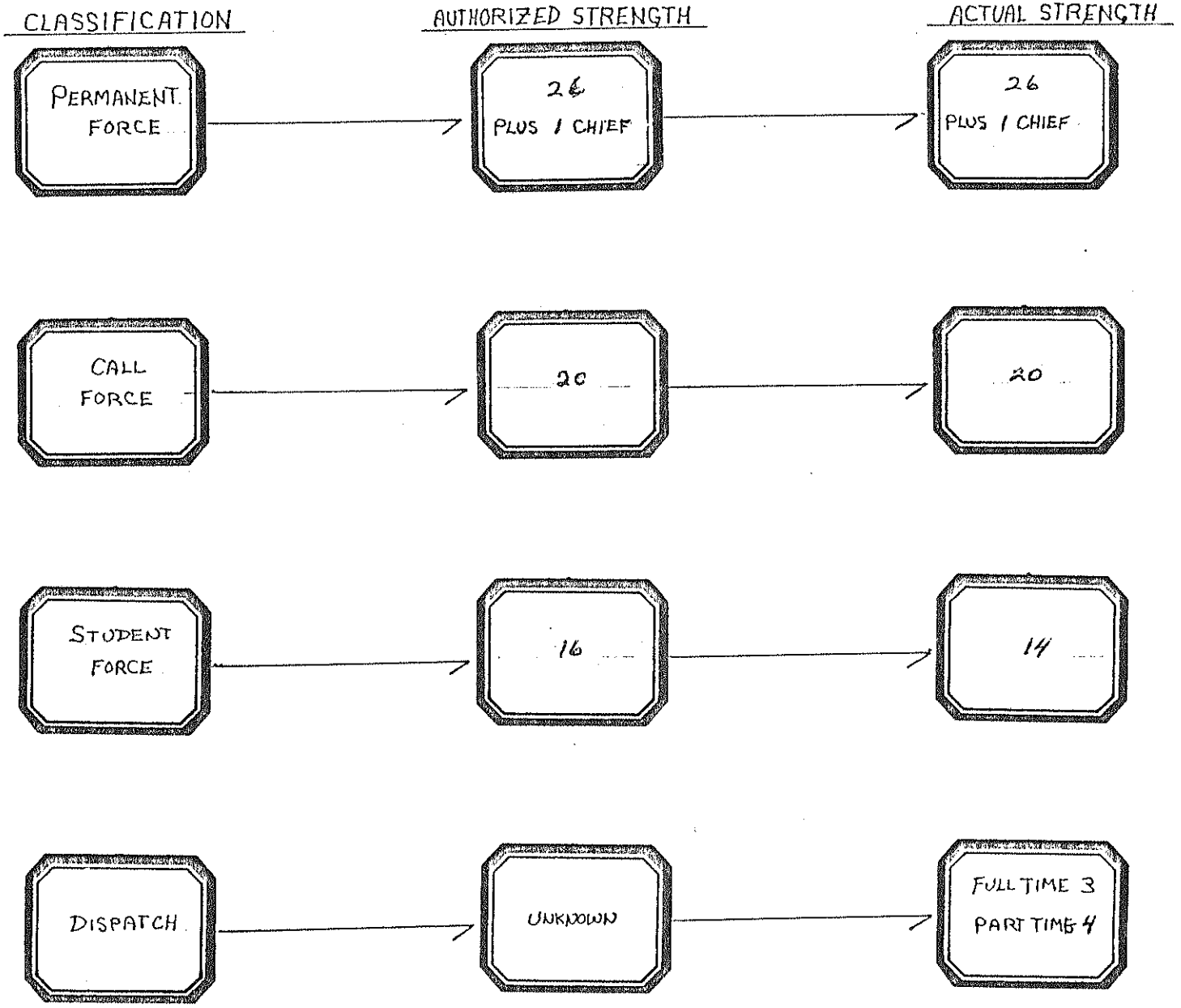
APPARATUS - VEHICLES

DESIGNATION	YEAR / NOTES
ENGINE-1 (E-1)	1982 CONTINENTAL W/ 1250 GPM PUMP
ENGINE-2 (E-2)	1978 MAXIM W/ 1500 GPM PUMP
ENGINE-3 (E-3)	1973 FORD W/ 1000 GPM PUMP
ENGINE-4 (E-4)	1976 MAXIM W/ 1000 GPM PUMP
ENGINE-5 (E-5)	1968 FORD W/ 1000 GPM PUMPER - RESERVE VEHICLE ONLY
LADDER-1 (L-1)	1954 MAXIM W/ 85' LADDER
SALVAGE (R-1)	1976 FORD W/ CUBE BODY

DESIGNATION	YEAR / NOTES
4-WHEEL DRIVE PICKUP (R-2)	1984 DODGE
TANKER	1962 CHEVROLET
AMBULANCE-12 (A-12)	1980 FORD W/CUBE BODY
AMBULANCE-13 (A-13)	1982 FORD W/CUBE BODY
CHIEF'S AUTOMOBILE	1982 CHEVROLET
ASS'T. CHIEF'S AUTOMOBILE	1978 CHEVROLET

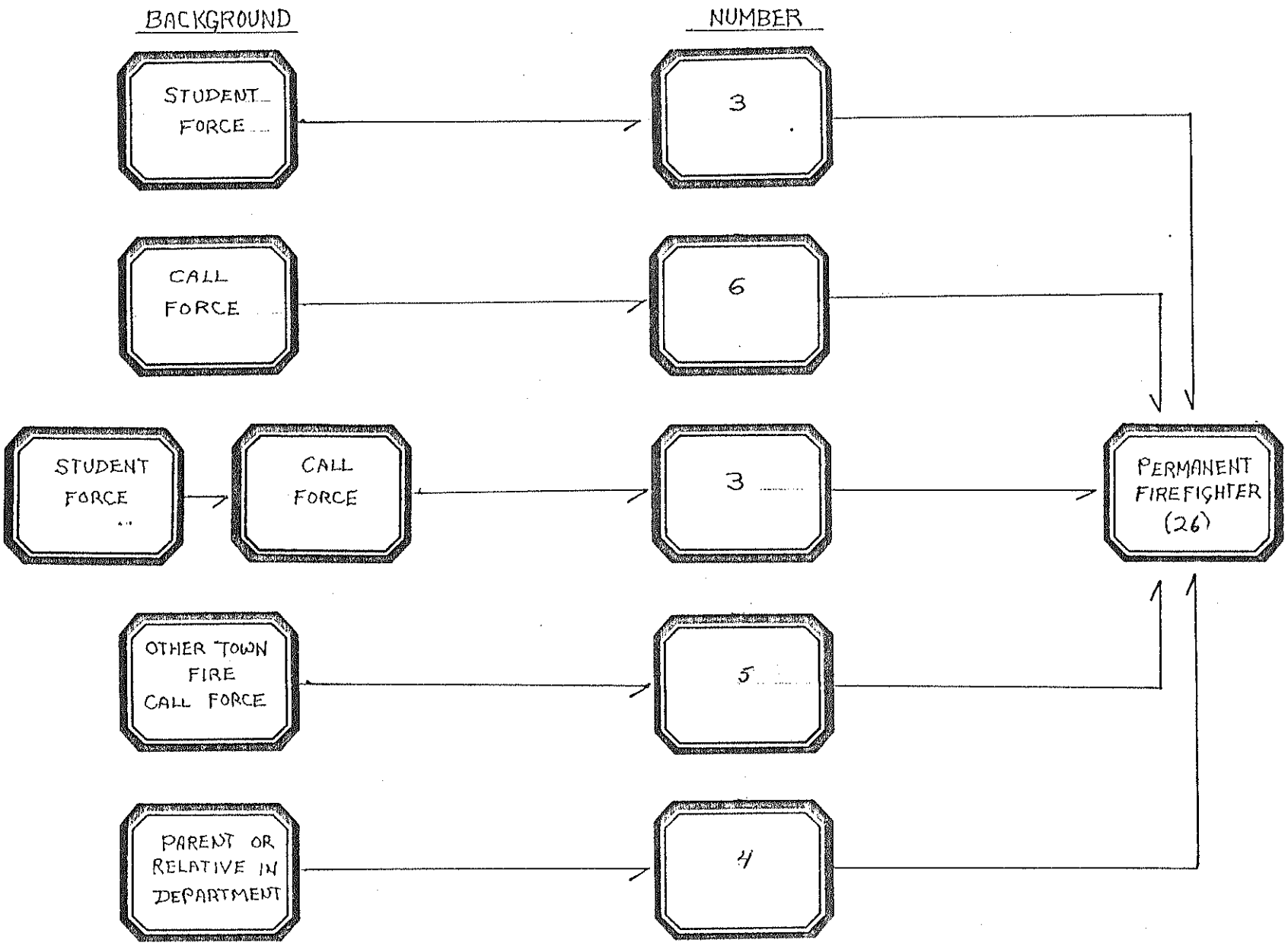
The fleet of vehicles in the Fire Department, the type, year, and vehicle designation.

MANPOWER



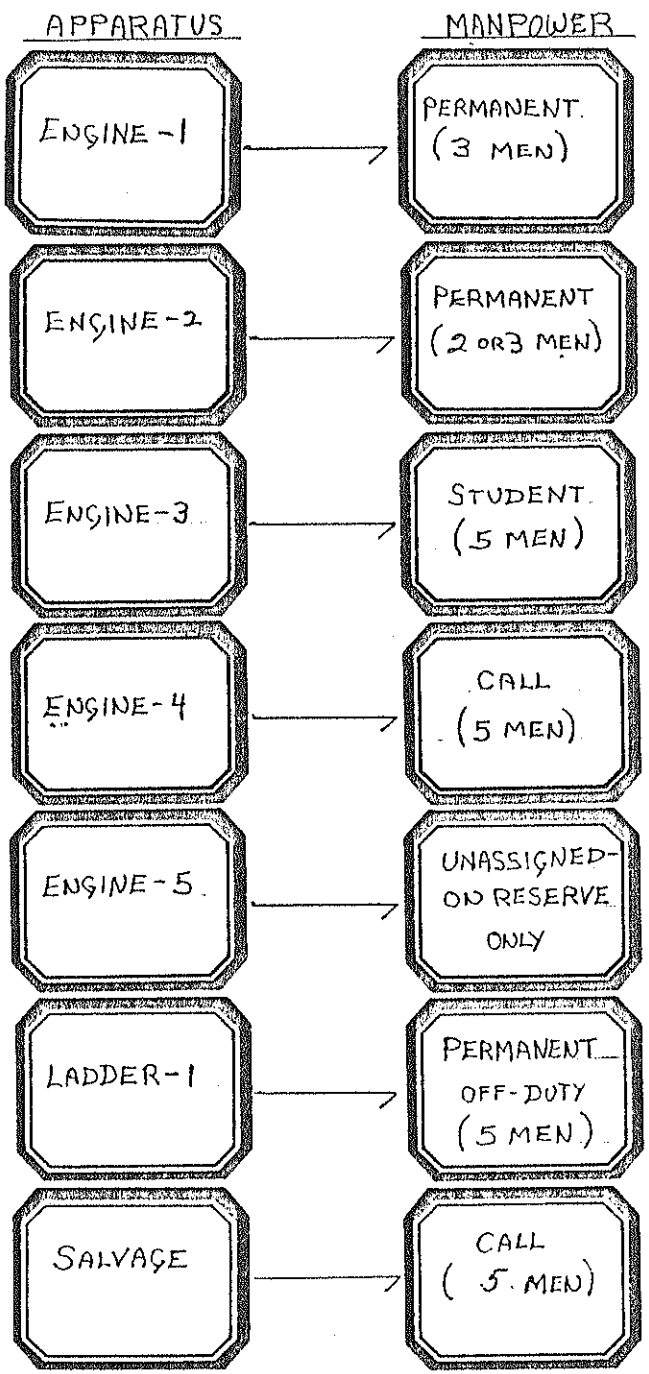
Breakdown of the Fire Department Organizational Forces, the allocated manpower, and the actual strength as of November 1, 1984.

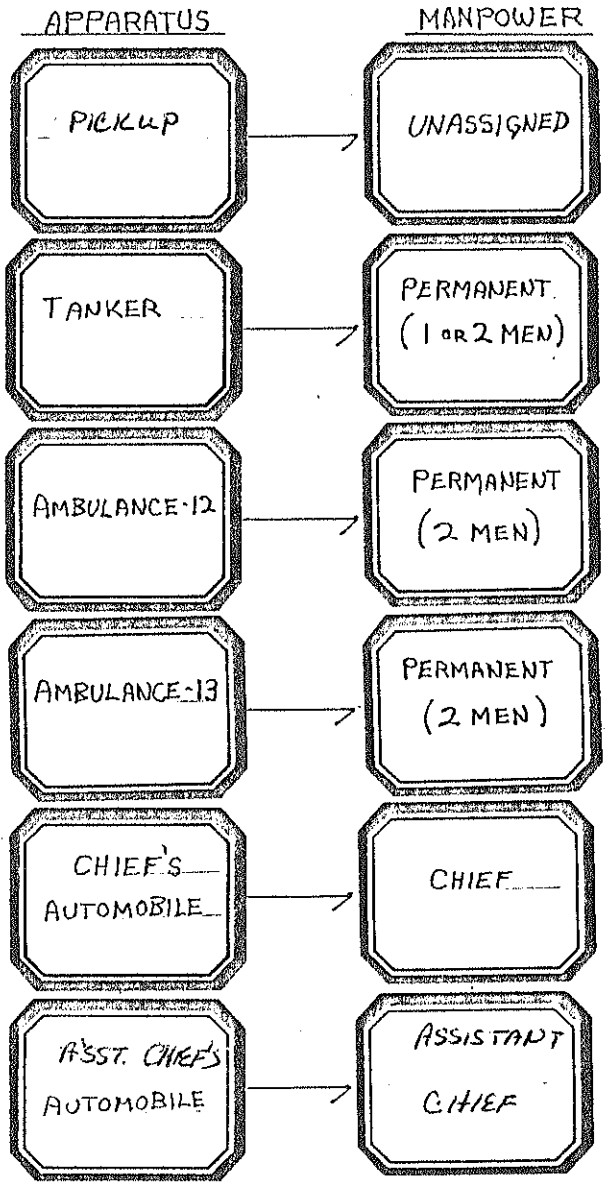
SOURCE OF PERMANENT FIREMEN



Members of the Permanent Force with a background in the Fire Service either with the Town or other Fire Departments before being employed as Full Time Firefighters.

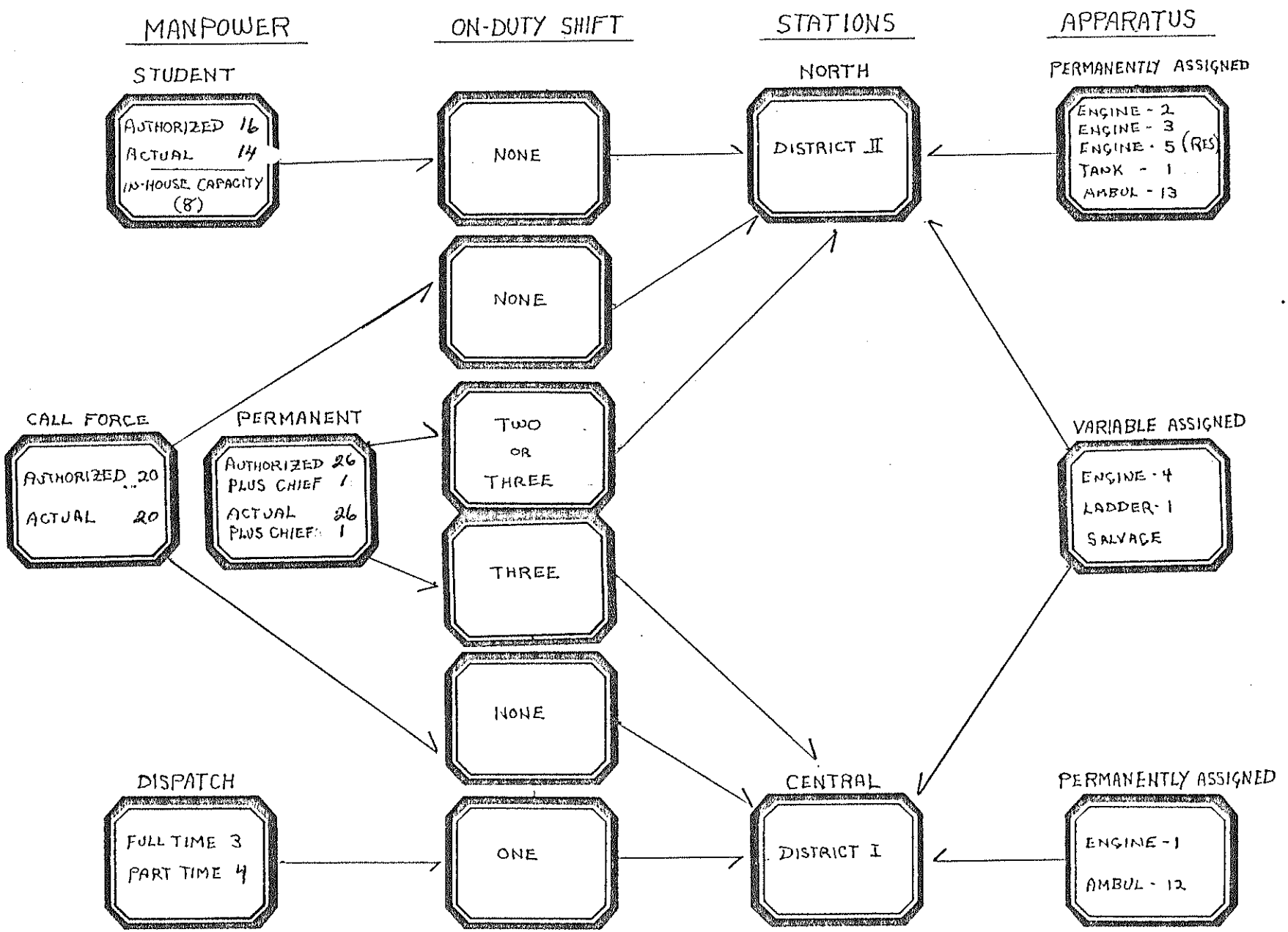
MANPOWER-TO-APPARATUS ASSIGNMENT





A breakdown of personnel assignments, which force mans the apparatus, and the number of personnel that respond normally on the piece.

ORGANIZATION DIAGRAM

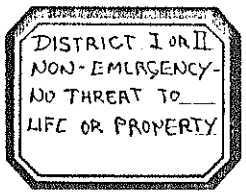


An organizational diagram of personnel, which station assigned, and apparatus locations for response call backs and dispatching.

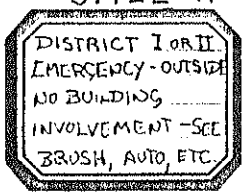
CLASS OF ALARMS

FIRE

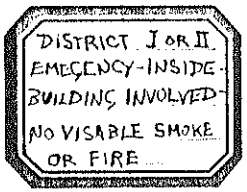
IN-SERVICE



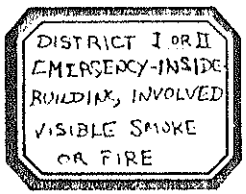
STILL "A"



STILL "B"

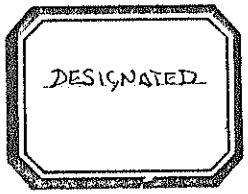


BOX



AMBULANCE

TRANSPORT



EMERGENCY

Charts on this and the next two pages show the normal minimum response to different classes of alarms depending on the severity of the call.

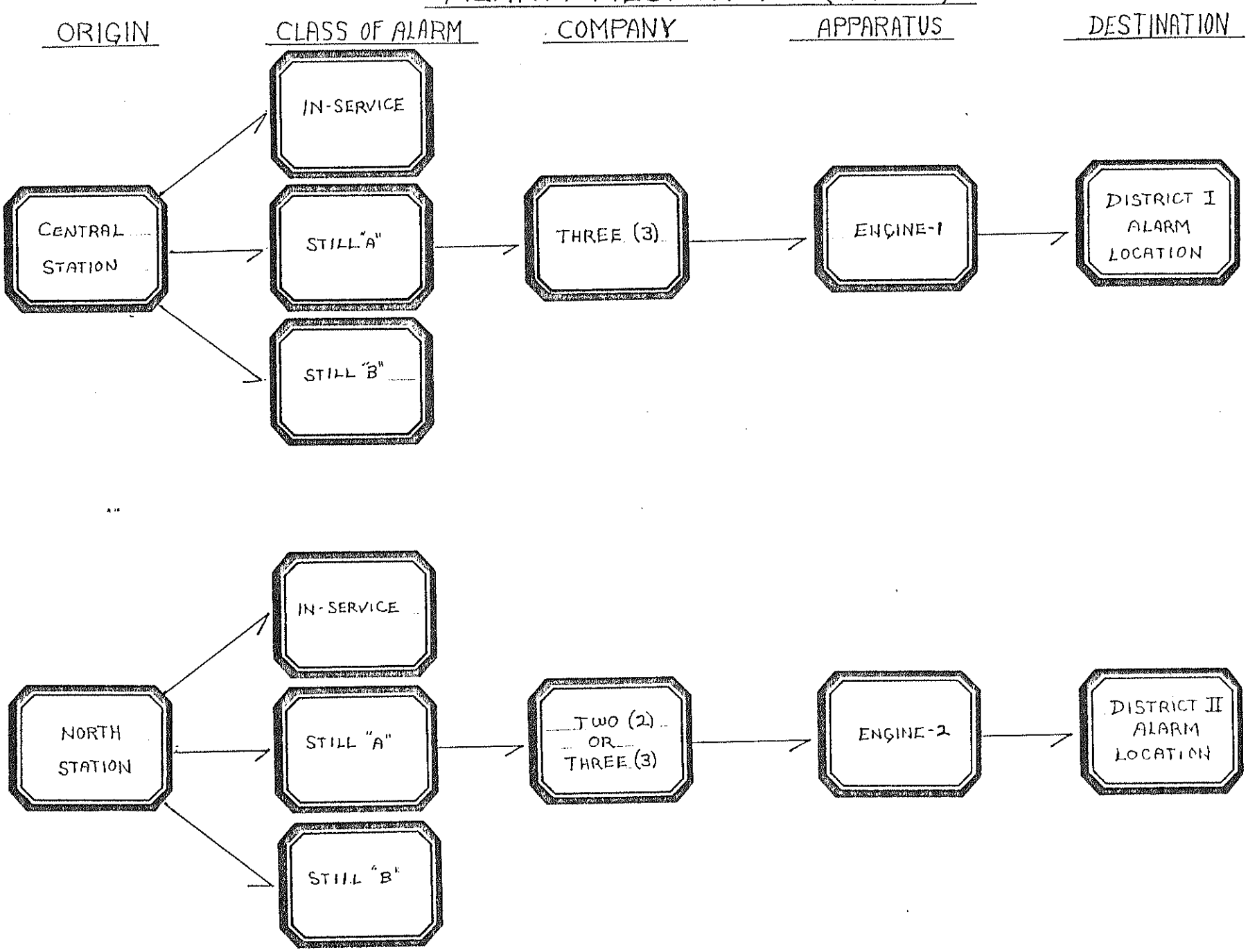
"In-Service: - Public Service Type Call with no indication of threat to life or property. Can be handled by one or two men and is assigned to the on duty company in that district of occurrence.

"Still (A)" - Emergency outside of a building with no life threat. Is handled by either a 2-man or 3-man Engine Company of on duty personnel in the District of occurrence.

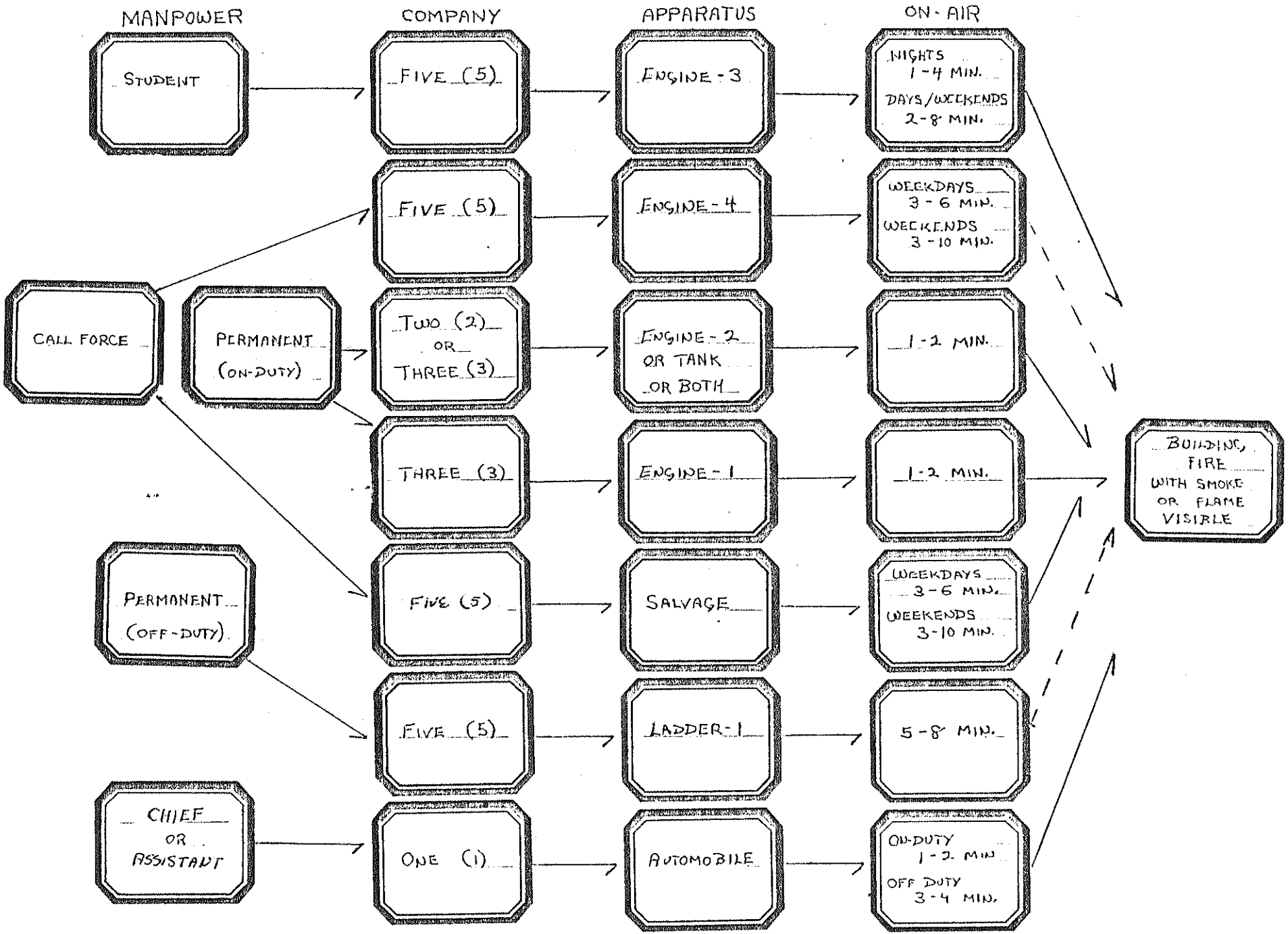
"Still (B)" - An emergency that involves a building, but there is no indication of visible smoke or fire. A minimum response of 3 on duty personnel is required, if not available between the two Stations then additional off duty personnel is brought in.

"Box Alarm" - An emergency that indicates either smoke or fire in a building. Both on-duty and off-duty personnel respond.

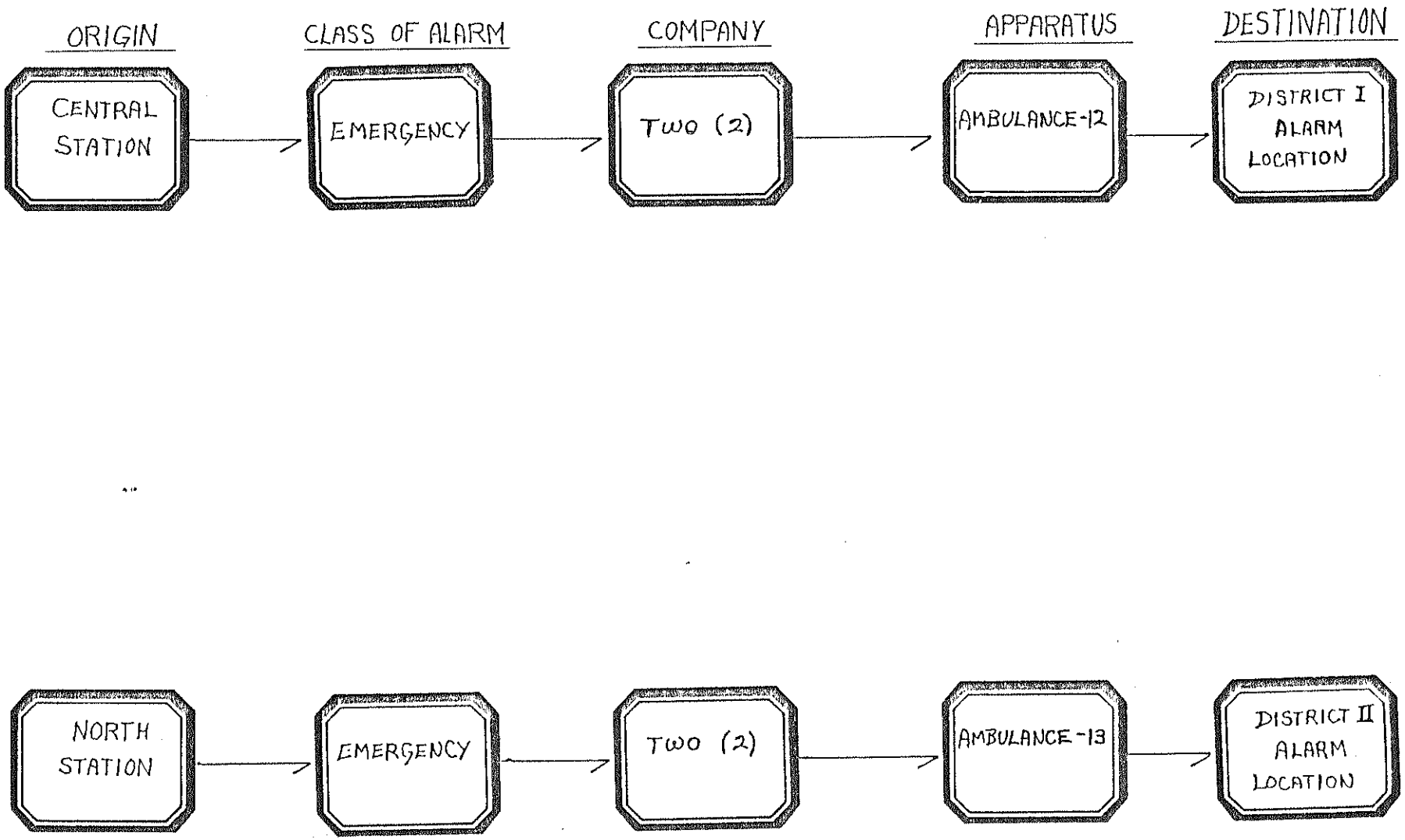
ALARM RESPONSE (FIRE)



BOX-ALARM RESPONSE



ALARM RESPONSE (AMBULANCE)



Ambulance response districts and personnel assignments.

APPENDIX III

Town of AMHERST Massachusetts

OFFICE OF THE TOWN PLANNER
Phone 1 (413) 253-2773

May 27, 1982

Donald J. Southwick, Vice President
Blair, Cutting & Smith Insurance Agency, Inc.
71 South Pleasant Street
Amherst, MA 01002

Re: Town of Amherst Fire Needs Assessment

Dear Mr. Southwick:

The following is an update of the information that you requested on population and building starts. I apologize for taking so long to get this to you.

POPULATION

U.S. CENSUS DATA

1950	1960	% Increase	1970	% Increase	1980	% Increase
10,856	13,718	26%	26,331	92%	33,229	26%

This data shows that while there was a very large population increase from 1960 to 1970, population growth slowed during the 1970's.

There has been a great deal of confusion over how students are counted in these population figures. In the 1950 and 1960 counts, students were given a choice of where their place of residence was: Amherst or their hometowns. Thus, the Census tended to undercount the number of students who were actually residing in Amherst during the school year.

Beginning in 1970, the Census counted as a resident anyone who was living in a specific place on the day when the Census was taken. Since Census questionnaires are filled out in April, anyone residing in Amherst at this time would be counted as a full-time resident.

It should be recognized that many students who reside off-campus live in places other than Amherst. The Off-Campus Housing Office at UMass estimates that approximately 60% of the UMass students residing off-campus live in Amherst. UMass students account for the majority of all students living off-campus in Amherst.

POPULATION PROJECTIONS

The following population projections for Amherst were supplied by the Lower Pioneer Valley Regional Planning Commission.

1980	1985	% Increase	1990	% Increase	1995	% Increase	2000	% Increase
33,229	34,392	7%	35,561	3.4%	36,308	2.1%	37,070	2.0%

These estimates show that population is projected to grow slowly in Amherst over the next 20 years. The growth rate will average about .6% per year, a very slow rate of growth. These projections were developed in conjuction with the Amherst Census Committee, who were responsible for determing what the prospects were for growth in Amherst based on new employment or housing opportunities.

NEW CONSTRUCTION

A review of building permits granted over the past 15 years shows that the recent level of activity has been relatively low when compared with the late 1960's and early 1970's.

Year	Single Family Permits	Multiple Family Permits		Total
1967	112	34	(284 units)	146
1968	128	3	(320 units)	131
1969	101	7	(113 units)	108
1970	159	7	(365 units)	166
1971	87	11	(910 units)	98
1972	118	6	(40 units)	124
1973	61	2	(88 units)	63
1974	24	0		24
1975	17	0		17
1976	24	0		24
1977	17	0		17
1978	27	2	(4 units)	29
1979	47	1	(100 units)	48
1980	23	2	(9 units)	25
1981	40	4	(23 units)	44
Totals	985	79		1064

The fall in the rate of construction of new single family homes can be attributed to three things:

1) State-imposed sewer moratorium. In 1973, the Department of Environmental

Quality Engineering determined that the Town's waste-water treatment facilities were inadequate to handle any additional hookups. This moratorium lasted until 1979, when a new waste-water treatment plant was opened.

2) High interest rates. Beginning in late 1979, interest rates rose to levels that caused a depression in the housing market. This has resulted in a reduced number of new housing starts in Amherst.

3) Slow population growth. In the last five years, Amherst's population has grown slowly, which is reflected in a reduced demand for housing.

In the early 1970's, there were a number of large apartment complexes built in Amherst. In recent years, however, most of the multiple family projects built in Amherst have be relatively small both in terms of the total number of units and the number of units per building. The one exception is the Clark House, which was built in 1979. This is largely due to the fact that the Town's Zoning By-law was changed in 1973 so that the possible apartments are permitted only in the General Residence, Fraternity Residence, General Business and Limited Business zones. There is very little vacant land left in any of these zones.

The location of the new construction that has occurred in the past fifteen years can be summarized as follows:

New single family dwellings have been scattered throughout Amherst in the past fifteen years, but the major subdivisions that have been built are located as follows:

South Amherst

Orchard Valley
Elf Hill
Hampshire Village
Hampshire College
Orchard Drive, Barry Circle, etc.

North Amherst

Eastwood
University Heights
Fraternity/Sorority
Sheerman Lane/Emily Lane

North Central Amherst

Echo Hill
Amherst Fields

Multiple family dwellings have been largely confined to North Amherst and North Central Amherst.

A map showing the location of most dwelling units in Amherst is available in the Town Planner's office.

I hope this information is useful to you. Please don't hesitate to call if you have any other questions.

Sincerely,

Paul Mazzarella

Paul Mazzarella
Town Planner

PM:lr

Appendix IV FIRE AND EMS RESPONSES AND MANPOWER POLICIES

The growth in fire and EMS demands can be measured by the responses recorded annually by the Amherst Fire Department. The committee reviewed the responses as reported in the Annual Town Reports from 1960 to 1983. (See Table I). Although we examined the statistics dating back to 1960, we decided to use the period 1976-1983 in our analysis of growth in fire, EMS, and total responses. We believe that 1976 is an appropriate starting point because it was the first year that the North Fire Station was fully operational.

This Appendix includes a number of tables and graphs analyzing the statistical data along with a summary of the results of our analysis and some observations.

A. ROLE OF FIRE AND EMS ACTIVITY

Table II shows fire and EMS responses as a percentage of total responses for each year in the period 1976-1983. The data in Table I shows that in terms of absolute numbers EMS plays a "major" role in fire department activity. Table II corroborates that in terms of percentages. In every year of the period EMS responses represent a larger proportion of total activity than fire responses. (Over the eight year period EMS responses represented an annual average of 63% of total responses.). Table II also reveals that EMS responses were a growing percentage of the total in the earlier years of the period (1976-198) reaching a peak of 70.3% in 1978. In the period from 1979-1983 that percentage declined and has remained relatively stable at about 58% in the last three years (1981-1983).

In Figure 1, annual fire, EMS, and total responses are plotted for the period. Trend lines are fitted to the data by the process of simple linear regression.

In observing the year to year changes in the actual data for total responses there were two years, 1978 and 1982, in which there were absolute declines in responses from the previous year. In the other years of the period total responses showed increases. The same is true for fire responses. The EMS data show declines for three years, 1978, 1980, and 1982.

TABLE I

ANNUAL RESPONSE ACTIVITY[1]
(1960-1983)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974*	1975	1976[2]	1977	1978	1979	1980	1981	1982	1983
FIRE	251	241	326	381	466	408	321	383	390	419	581	649	551		626	709	624	727	556	809	845	1122	915	941
EMS	368	260	298	272	327	338	373	353	332	391	508	529	775		944	1159	1232	1467	1327	1401	1373	1560	1280	1331
TOTAL	619	501	624	653	793	746	694	736	722	810	1089	1178	1326		1570	1868	1856	2194	1883	2210	2218	2682	2195	2272

[1]Figures obtained from Fire Dept. Reports in Annual Town Reports. Figures from 1960-1972 are on calendar basis. From 1975 to 1983 figures are for fiscal year (July 1 - June 30).

*73-74 - 18 month year as result of switch over from calendar to fiscal year reporting required by state law change. Figures given represent a 12-month average.

[2]First full year operation of North Fire Station.

TABLE II

FIRE AND EMS AS PERCENTAGE OF TOTAL RESPONSES (%)

	FY 76	FY 77	FY 78	FY 79	FY 80	FY 81	FY 82	FY 83
FIRE	33.6	33.1	29.5	36.6	38.1	41.8	41.7	41.4
EMS	66.4	66.9	70.5	63.4	61.9	58.2	58.3	58.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

More revealing is the great year to year variation, especially in fire responses.

The trend lines for EMS, fire, and total responses show the growth over the entire period in a way that abstracts from the year to year fluctuations. It reveals the degree of the underlying growth in responses. The trend analysis shows that there has been a 2.9% annualized rate of growth in total responses. It also shows that the major source of the growth over this period is attributable to the growth in fire responses rather than the growth in EMS responses. There was a 7.6% annualized growth rate in fire responses and a less than 1% annualized growth rate in EMS responses (.43%).

Figures 2, 3, and 4 show annual fire, EMS and total responses as a percentage of the 1976 responses.

There is one characteristic of the data which appears very strange. The yearly fluctuations in fire and EMS responses exhibit the same pattern. Since the causes of EMS and fire responses are not the same it is strange and somewhat unsettling to find the two sets of statistics exhibiting the same pattern.

Figure 5 is included to show the record of fire losses each year during the period. Amherst is well below the national norms in fire losses.

These statistics, by themselves, tell nothing about the causes of the measured rates of growth. Growth in responses is not SIMPLY a matter of population growth, age of stock, etc. The committee looked to the yearly reports of the fire department in the Annual Town Reports in order to find information which would help in the interpretation of the data. Although we confined our statistical analysis to the period 1976-1983, we reviewed these reports dating back to 1966. A number of possible inferences can be drawn from a reading of that record.

B. FIRE RESPONSES

With respect to fire responses it appears that the dramatic increases from 1970

Responses

FIGURE 1

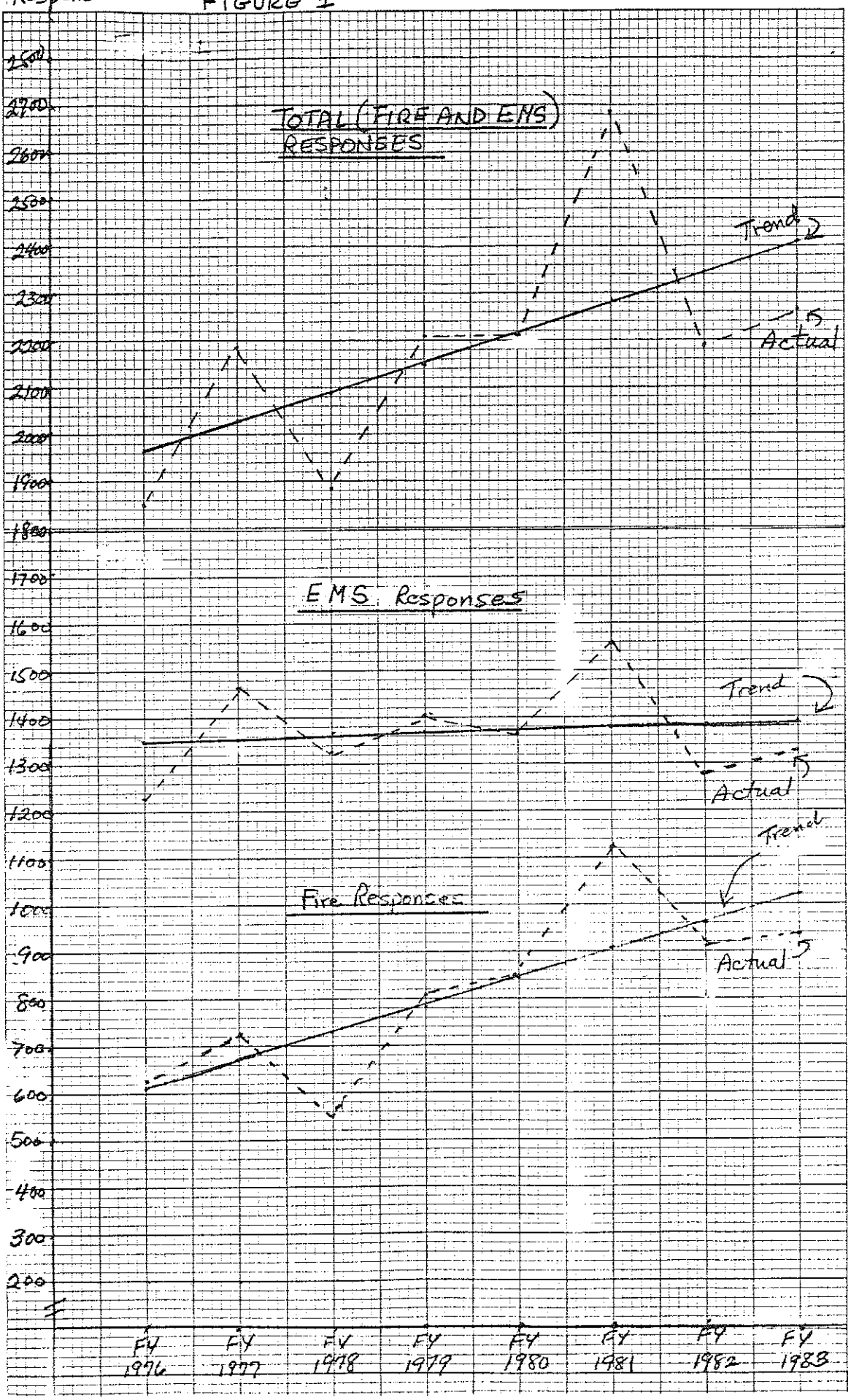


Figure 2 ANNUAL FIRE RESPONSES AS PERCENTAGE OF 1976 FIRE RESPONSES: 1976-1983 (1976=100%)

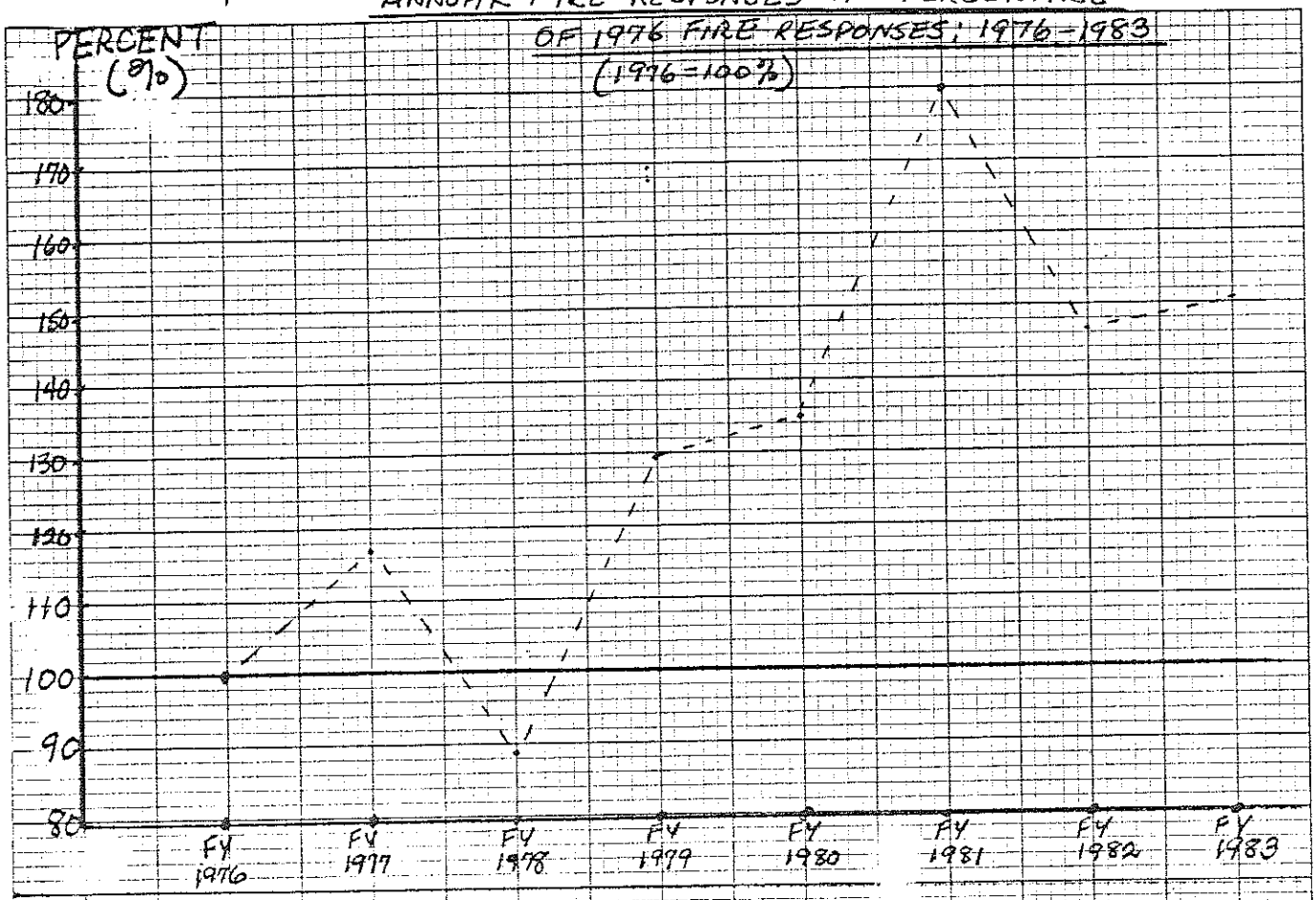


Figure 3 ANNUAL EMS RESPONSES AS PERCENTAGE OF 1976 EMS RESPONSES: 1976-1983 (1976=100%)

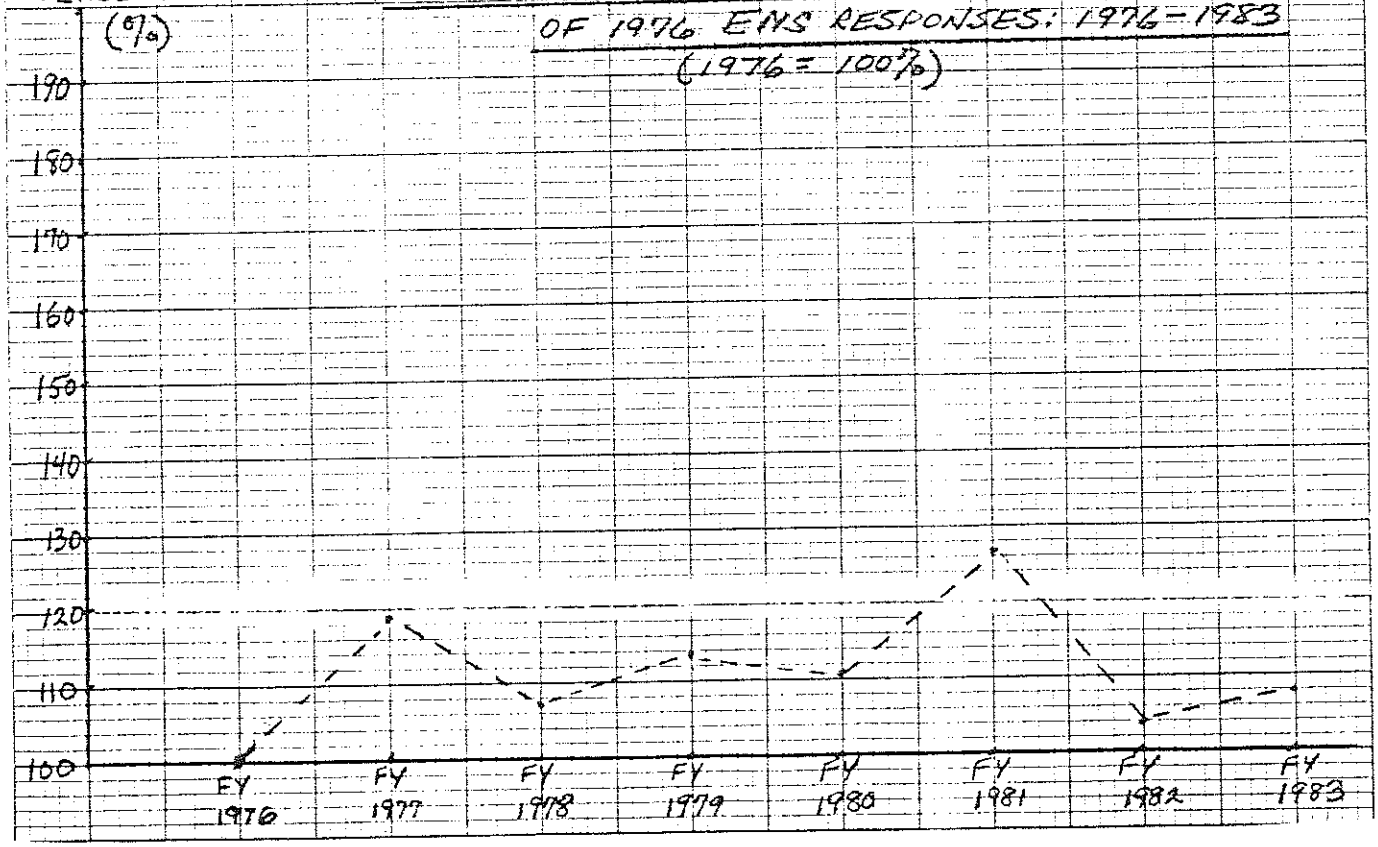


Figure 4

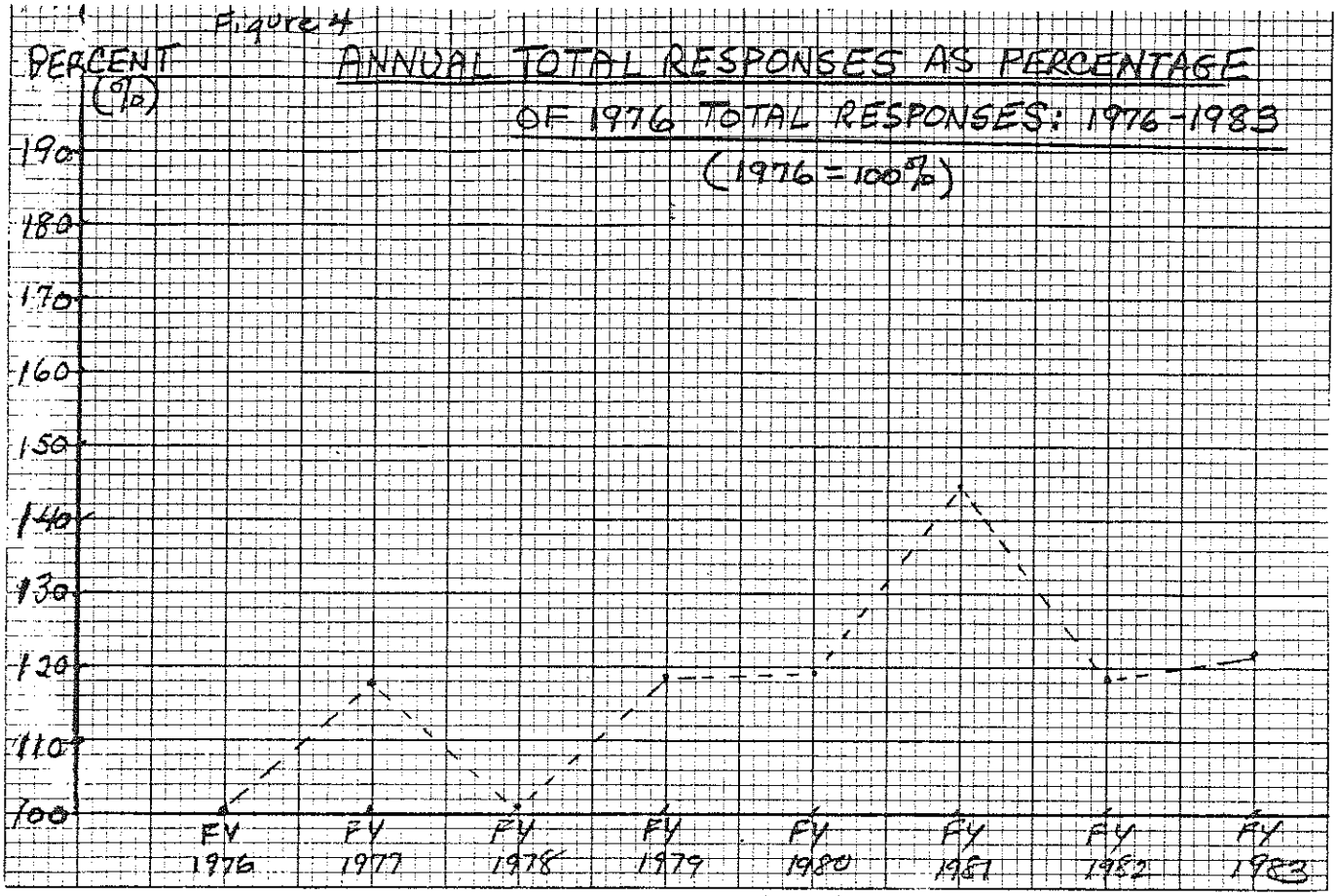
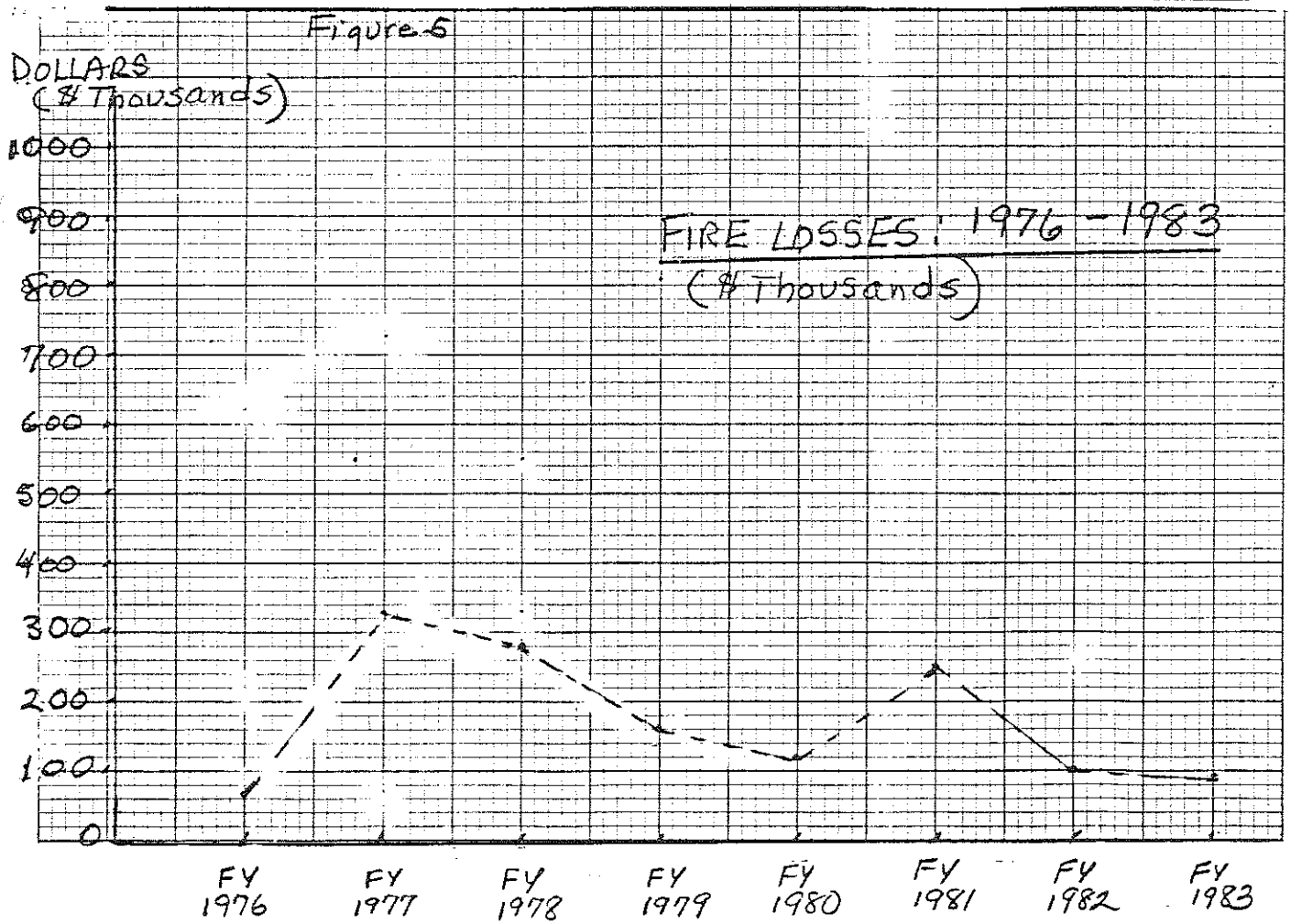


Figure 5



n the Centimeter

to 1981 were largely traceable to false alarms and alarm malfunctions at the University of Mass. after the installation of detection devices within the dormitories. In the 1979 Annual Town Report, the Fire Chief explained the dramatic increase that year as resulting from "the installation of sophisticated detection and alarm systems installed in a half-dozen dorms and the propensity of these systems to malfunctions to malfunction plus the increase in incidence of malicious false alarms while prosecutions declined." It was also noted that for the first time fire calls to UMass were more than the combined calls for all other sources. 1980 marked a second year in which this occurred. 1979 was also the first year which marked the end of a long decline in fire responses as a percentage of all responses which had begun in 1971. It marked the beginning of a rise in that percentage which continued through 1983. (In 1971 fire responses constituted 55% of all responses. This declined continuously until 1978 when it represented 29.5% of all responses. In 1979 it grew to 36.6% and by 1983 had risen to 41.4%. (See Table II).

The continuing problem of false and needless alarms is indicated by the narrative in Annual Town Reports and is further revealed by department statistics on the breakdown of calls by type and source. In 1982 over 30% of the calls to UMass were labeled as needless or false alarms as compared with 11.4% of Amherst College calls, 0% of Hampshire College calls and 7% of Amherst calls. (Hampshire College Security investigates each alarm prior to the alarm being relayed to the Amherst Fire Dept.)

Malicious false alarms and fire detection systems which tend to malfunction or are easily subject to vandalism appear to constitute a major source of the growth in fire responses. Controlling this source of growth should be a primary objective of the fire department. Investigations with University officials and Amherst College officials on possible "internal" solutions at these institutions could result in significant reductions in fire responses. In this regard it is interesting to note the comments of the Fire Chief in the 1976 Annual Town Report. There was a significant decline in fire calls from 1975 to 1976, which the chief attributed to the "vigorous investigations and prosecutions of false alarms at the University." Although the 1980 Report included a statement that the University planned to undertake "a get-tough

policy with false alarms and vandals" and that the fire department "will closely monitor the results" no further mention of the situation appears in the 1981, 1982 or 1983 Reports.

If there is to be an internal policy for dealing with false alarms and for altering the current alarm or detector systems it should be a consistent and on-going policy if it is to have positive and continuing results.

Another important mechanism for reducing fire-related responses is through fire-prevention activities. One of the committee's recommendations is for the adoption of a Fire Prevention Code with sufficient funds for a program of inspection and vigorous enforcement. It is interesting to note that the need for such a code was first noted by the Fire Chief in the 1966 Annual Town Report. In 1976 an attempt to get a Code enacted was defeated by the Town in a referendum. It is this committee's belief that resources devoted to fire inspection and prevention activities will reduce fire "protection" needs and thereby reduce the necessity of the Town to commit itself to even more costly increases in men and equipment.

The idea that resources devoted to prevention may be more cost-effective than increases in men and equipment is not new to Amherst. It was recognized in 1977 by the Fire Chief when attempts to get the state legislature to provide funds for the acquisition of a new aerial truck to provide protection for the high-rise dorms at the University failed. The Chief, who had for some time strongly recommended such acquisition, conceded that the updating of interior fire-prevention systems was a more effective way of using funds than acquiring equipment and men to man it, which he estimated at that time would cost the Town $200,000 per year in operational costs. Unfortunately, the full advantages of the fire-prevention systems have yet to be realized because of the failure to address the problems of malfunction and vandalism.

C. EMERGENCY MEDICAL SERVICES

Contrary to perceptions, EMS while representing the major activity of the department both in terms of absolute numbers of responses and in terms of the proportion

of all responses (58.6% in 1983) has become a smaller proportion of department activity since 1978 as a result of the increasing rate of growth of fire responses.

What accounts for the measured growth in EMS responses (.34% annualized rate of growth over the 1976-1983 period)? Surely as the population base increases one can expect an increase in ambulance responses. Although there are national norms for expected EMS cases based on populations estimates, the committee did not have information on these. However, they were alluded to in the 1976 Annual Town Report by the Fire Chief who at that time "predicted the population base should generate no more than 1500 EMS cases per year at heavy usage." He based that estimate on the national norm. The highest level of EMS responses during the 1976-1983 period was 1560 which occurred in 1981. The average annual response during this period was 1371. In 1983 there were 1331 ambulance responses. If the trend of the past eight years remains the same it will be 1990 before Amherst reaches a level of 1500 EMS responses. Although yearly variations can be expected in services of an emergency nature, it must be recognized that our ambulance service has included non-emergency or transport cases as well as emergency cases. Although the Committee had few statistics on the proportion of transfer services in the early years of the period it can be inferred from comments in the Town Reports that such services have represented a concern. It was noted in 1982 by the Fire Chief that a reduction in ambulance runs for that year was "directly attributable to the departmental policy of requesting medical facilities to use fire department ambulances only for transfers of an emergency nature, directing routine transfers into the private sector." That year showed a decrease in ambulance responses of 19% with a 12.11% decline in transfer runs. In 1982 the statistics showed that emergency responses accounted for 87.9% while transfers accounted for 12.1% of the total ambulance responses. Measures for publicizing and enforcing the departmental policy of directing non-emergency transfers to the private sector require continuous attention. In 1983 despite department policy, emergency responses declined to 85.8%

while transport services increased to 14.2%. (While emergency runs rose from 1125 to 1142, a 1 1/2% increase, transfers rose from 155 to 189, a 21.9% increase). A successful reduction in non-emergency transfers not only frees ambulances to be available for immediate emergency responses but also makes any given level of manpower more available for fire responses.

D. "SEASONAL" FLUCTUATIONS IN FIRE AND EMS ACTIVITY

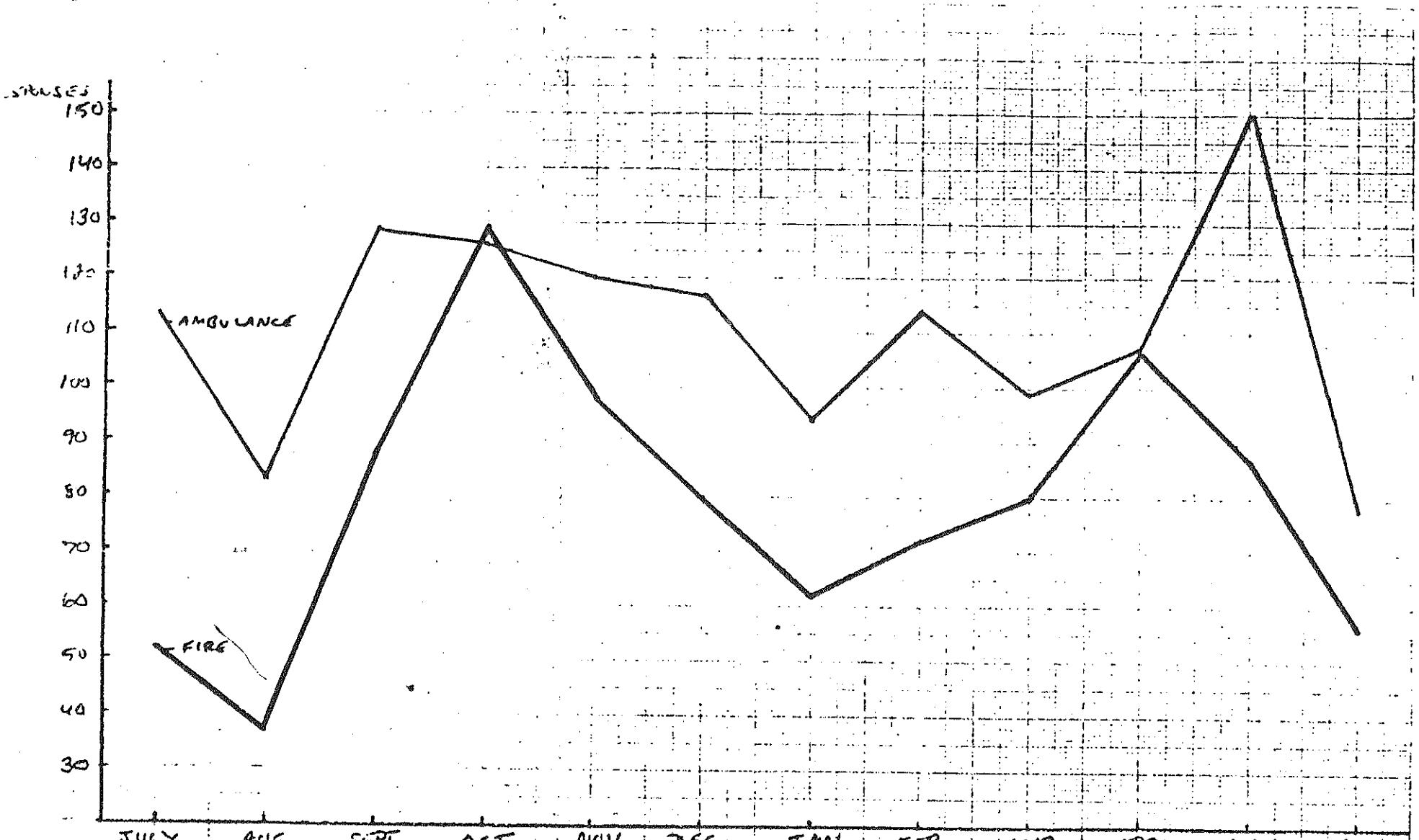
Amherst is unique because of the presence of three higher educational institutions, one of which adds considerably to the total population of the Town, and because a major proportion of the "student" population are Town "residents" for the academic rather than calendar year. One would, therefore, expect that fire and EMS activity in Amherst might exhibit a "seasonal" pattern of activity. A breakdown of monthly activity (fire and EMS responses) reported by the Fire Department for 1983 confirms such a pattern. (See Figure 6). Although the Committee did not examine monthly activity for other years in the period 1976-1983, we would expect a similar pattern to exist.

This is an important characteristic, which should be taken into account in determining the appropriate level of permanent personnel and in investigating alternative uses of the three components of firefighters (permanent, call, and student auxilliary forces) in order to accommodate the peaks and valleys of activity over the year in a cost effective manner.

E. SUMMARY

The Committee has collected data on fire, EMS, and total responses for the 1976-1983 period, has subjected these data to various statistical analyses to get some measure of growth, and has tried to determine the causes of the measured growth through the reading of Annual Town Reports and discussions with appropriate personnel. We would like to note again the one troubling characteristic of the data; the fact that despite different "causes" of EMS and fire responses, both sets of statistics exhibit the same pattern.

Figure 6



KEY:
FIRE —
AMBULANCE —

MONTHLY ACTIVITY
FY 1983

TOTALS:
FIRE - 941
AMBULANCE - 1331
6.2 a day

Source: Material presented by Fire Department for Annual Town Report 1983